4.13 TRANSPORTATION/TRAFFIC

This EIR section analyzes the potential for adverse impacts on existing transportation and traffic conditions resulting from implementation of the Beach Boulevard and Edinger Avenue Corridors Specific Plan EIR, referred to as the proposed project. Data used to prepare this section were taken from the City's General Plan Circulation Element, *Beach Boulevard and Edinger Avenue Corridor Specific Plan Traffic Study* dated August 2009 (Appendix F1) and *McFadden Avenue/Sugar Drive Traffic Evaluation* (Appendix F2). Full bibliographic entries for all reference materials are provided in Section 4.13.5 (References) at the end of this section.

All comments received in response to the Initial Study/Notice of Preparation (IS/NOP) circulated for the proposed project were taken into consideration during preparation of this Environmental Impact Report, and if relevant, have been addressed in this section or others within this document.

4.13.1 Environmental Setting

This section provides an assessment of existing conditions in and around the project study area, including a description of the existing street and highway system, traffic volumes on these facilities, and operating conditions at selected intersections. Due to the nature of transportation and traffic issues, the project study area as it relates to this EIR section is larger than the Specific Plan project site. The study area includes all facilities where peak hour intersection volume/capacity ratios increase by one percent or more as a result of the project. This is the impact threshold used in the traffic study and is thereby used in defining the study area.[47]

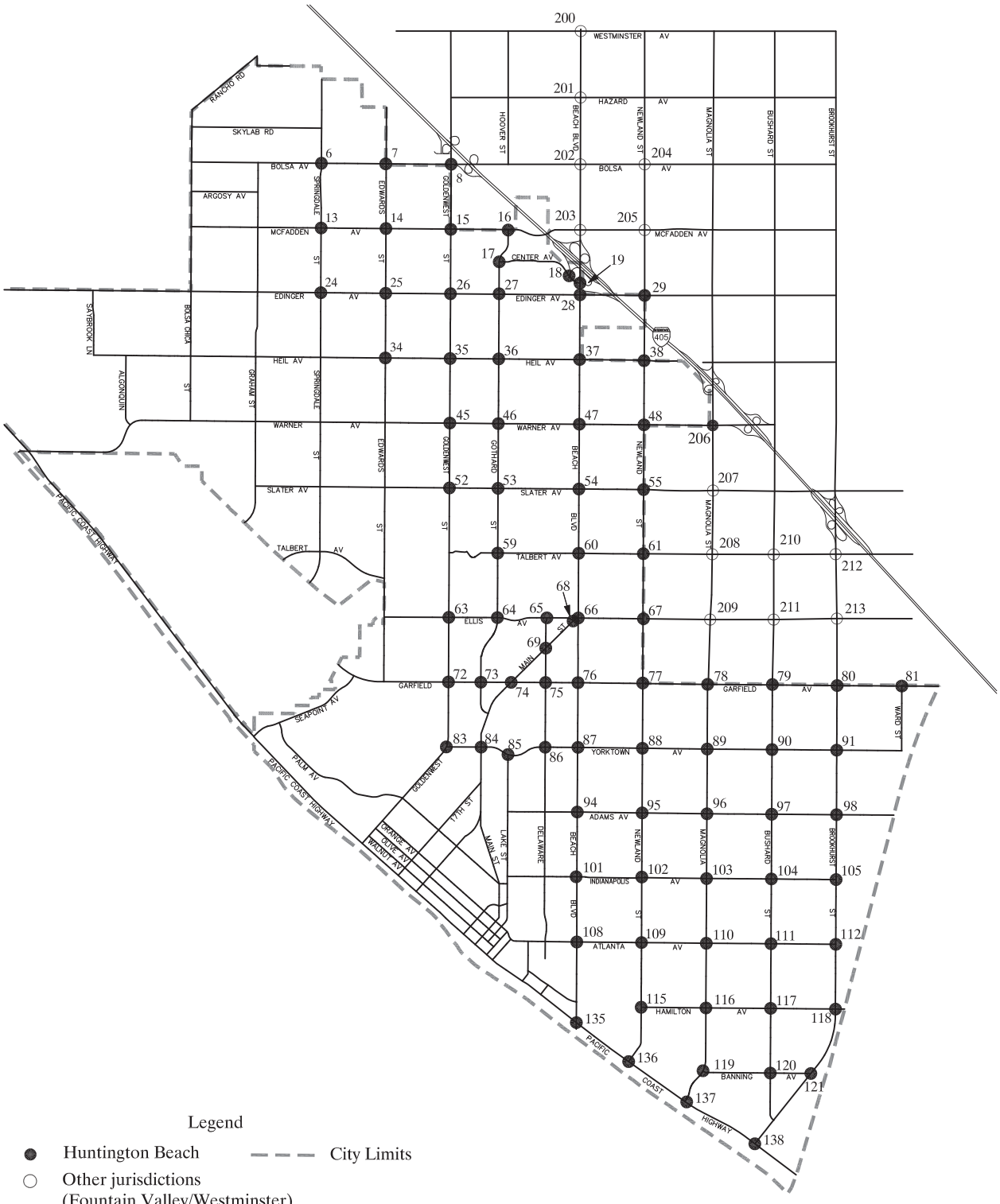
As shown on Figure 4.13-1 (Study Area Intersections), the study area encompasses portions of three cities: Huntington Beach, Westminster, and Fountain Valley.

Regional Highway and Street Network

Freeways

Regional and inter-regional access for the City of Huntington Beach is provided by a system of freeways, and major and local arterials. The San Diego Freeway (I-405) is the major north/south freeway that provides regional access to the City. The Specific Plan project site extends along Beach Boulevard from Edinger Avenue to just south of Atlanta Avenue, and along Edinger Avenue from Goldenwest Street to Beach Boulevard. Beach Boulevard, also known as State Route (SR) 39, has been designated as a "Smart Street Corridor" by the Orange County Transportation Authority (OCTA) (Circulation Element 1996).

[47] The City of Costa Mesa suggested that the traffic analysis for the proposed project include all Costa Mesa intersections where the proposed project would increase the peak hour traffic by 50 trips. Since a one percent threshold can be met with as few as 17 peak hour trips, it tends to be more conservative than the 50 trips criteria (i.e., the study area is more extensive).



***Source*:** Austin-Foust Associates, Inc., 2009.

FIGURE **4.13-1**

Study Area Intersections

Local Access

Regional access to the proposed project area is via four freeway interchanges with the I-405, located at Goldenwest Street, Beach Boulevard, and Magnolia Street/Warner Avenue. Two other SR facilities in the study area are Beach Boulevard (SR-39) and Pacific Coast Highway (SR-1). Arterials throughout the study area are classified according to the City's General Plan Circulation Element and the County Master Plan of Arterial Highways (MPAH). The key local streets serving the project site are described below:

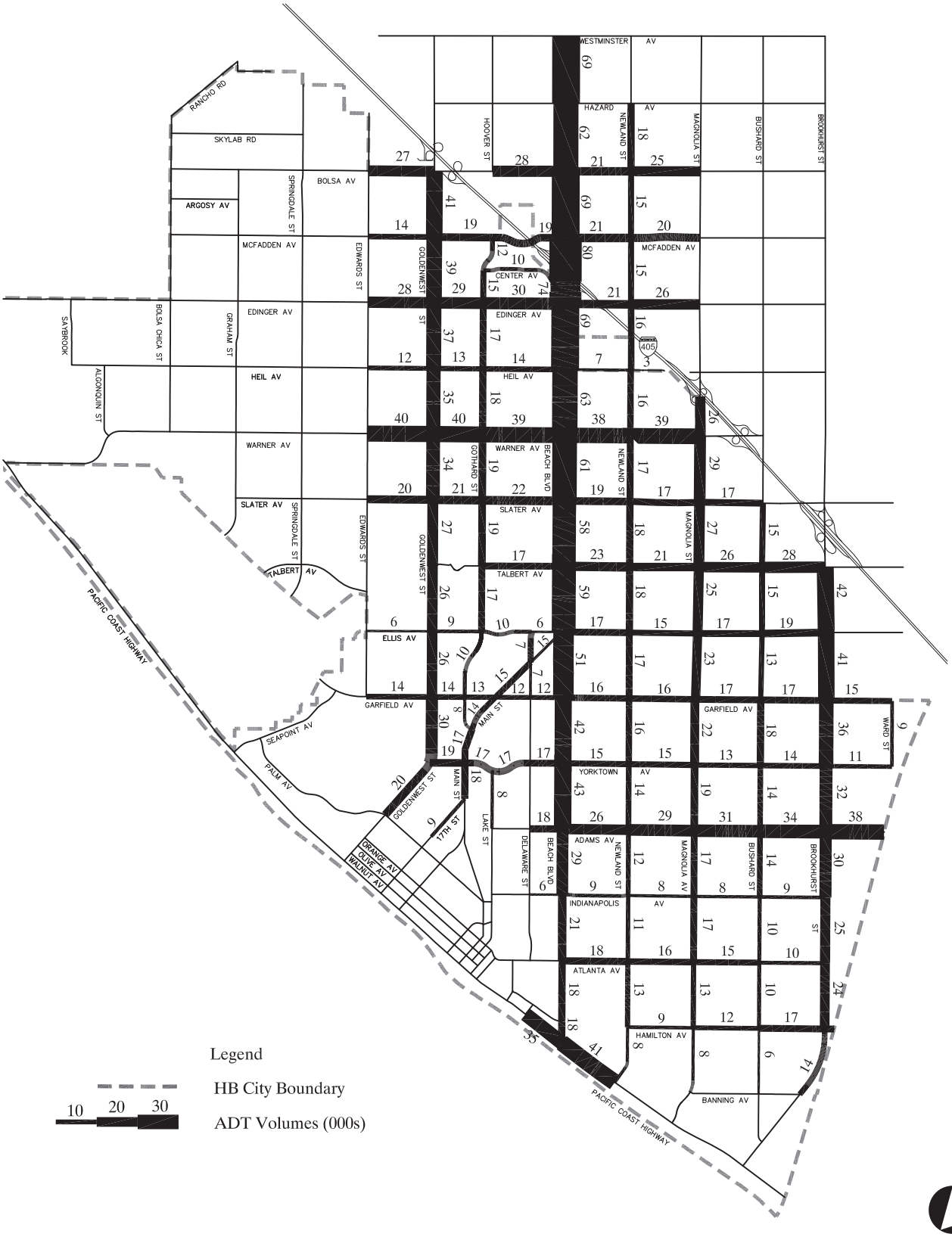
- **Beach Boulevard** is the City's major north/south roadway that connects I-405 to the beach. It is an eight-lane divided roadway from the northern City limits to Ellis Avenue, and a six-lane divided roadway from Ellis south to its terminus at Pacific Coast Highway. It is designated by the City of Huntington Beach General Plan Circulation Element as a principal arterial street. Beach Boulevard would provide primary access to Edinger Avenue.
- **Edinger Avenue** is a major east/west divided roadway. The City's General Plan Circulation Element classifies Edinger Avenue between Newland Street and Springdale Street as a major six-lane divided roadway, and to the east of Newland Street, Edinger Avenue becomes a four-lane primary divided roadway.

Existing Traffic Volumes

The volumes for the arterial roads in the study area are from traffic counts collected in late 2005 and early 2006 for the City of Huntington Beach, and in early 2009 for other jurisdictions. A traffic count survey was performed in October 2008 for selected screenlines within the City of Huntington Beach in order to determine whether the citywide traffic counts performed in late 2005 and early 2006 were suitable for use in this EIR traffic study. Appendix A of the traffic study (included in this EIR as Appendix F1) summarizes the 2008 count data and compares it with the 2005/2006 data. The 2008 count data do not show substantial changes from that taken in 2005/2006. In general, the 2008 volumes are lower, the exception being north/south counts on Magnolia Street, Bushard Avenue, and Brookhurst Street south of Yorktown Avenue. Various construction activities have been taking place in the part of Fountain Valley to the north, and while every effort is made to avoid construction activity when carrying out a count program, the extent of that construction may have influenced counts in that area.

Figure 4.13-1 illustrates the study area intersections. Existing average daily traffic (ADT) volumes on the study area circulation system are shown in Figure 4.13-2 (Existing Study Area ADT Volumes). Beach Boulevard experiences the highest volumes (approximately 80,000 ADT just north of the project site boundaries), while Edinger Avenue experiences volumes up to 30,000 ADT.

It should be noted that, for the purposes of this analysis, inclusive of existing conditions, performance criteria used for evaluating volumes and capacities on the City street system are based on peak hour intersection volumes. Using peak hour intersection turn movement volumes and the intersection lane geometry, intersection capacity utilization (ICU) values are calculated for each of the AM and PM peak hours. The ICU values represent volume/capacity (V/C) ratios for these times periods, and thereby provide a suitable measure of system performance. For Caltrans intersections, average vehicle delay



***Source*:** Austin-Foust Associates, Inc., 2009.

FIGURE **4.13-2**

Existing Study Area ADT Volumes

calculations are also made using the Highway Capacity Manual (HCM) methodology (i.e., both ICU values and average delay are calculated for these intersections). HCM methodology estimates the average total delay for each of the traffic movements and determines the LOS for each movement. The overall average delay is measured in seconds per vehicle, and LOS is then calculated for the entire intersection.

Traffic levels of service are designated A through F, with LOS A representing free flow conditions and LOS F representing severe traffic conditions. LOS D (ICU not to exceed 0.90) is the performance standard that has been adopted by the Cities of Huntington Beach, Westminster, and Fountain Valley, whereas the performance standard for an Orange County Congestion Management Program (CMP) intersection is LOS E (ICU not to exceed 1.0). There are five CMP intersections located in the study area:

- Beach Boulevard at Adams Avenue (City of Huntington Beach)
- Beach Boulevard at Edinger Avenue (City of Huntington Beach)
- Beach Boulevard at Pacific Coast Highway (City of Huntington Beach)
- Beach Boulevard at Warner Avenue (City of Huntington Beach)
- Beach Boulevard at Bolsa Avenue (City of Westminster)

Although LOS E is acceptable for CMP purposes at these locations, the City performance standard of LOS D is typically used by the cities in the study area for traffic analysis application.

In terms of freeway interchange ramps, the analysis is based on peak hour V/C ratios, with capacity being a function of the particular operating characteristics of each ramp. LOS E (peak hour V/C less than or equal to 1.00) is an acceptable level of service for freeway ramps.

The results of the existing intersection analysis are summarized in Table 4.13-1 (Existing Level of Service Summary) which includes the existing level of service summary for both ICU and HCM methodologies.

Table 4.13-1 Existing Level of Service Summary

INTERSECTION CAPACITY UTILIZATION (ICU)

Intersection	*AM Peak Hour*		*PM Peak Hour*	
	ICU	*LOS*	*ICU*	*LOS*
City of Huntington Beach				
Springdale Street at Bolsa Avenue	.64	B	.63	B
Edwards Street at Bolsa Avenue	.56	A	.60	A
Goldenwest Street at Bolsa Avenue	.64	B	.86	D
Springdale Street at McFadden Avenue	.56	A	.70	B
Edwards Street at McFadden Avenue	.62	B	.55	A
Goldenwest Street at McFadden Avenue	.68	B	.72	C
Gothard Street at McFadden Avenue	.48	A	.51	A
Gothard Street at Center Avenue	.28	A	.47	A
I-405 SB Ramps at Center Avenue	.40	A	.75	C
Beach Boulevard at Center Avenue	.66	B	.68	B

Table 4.13-1 Existing Level of Service Summary				
	AM Peak Hour		PM Peak Hour	
Intersection	ICU	LOS	ICU	LOS
Springdale Street at Edinger Avenue	.65	B	.55	A
Edwards Street at Edinger Avenue	.59	A	.57	A
Goldenwest Street at Edinger Avenue	.62	B	.60	A
Gothard Street at Edinger Avenue	.47	A	.57	A
Beach Boulevard at Edinger Avenue	.71	C	.88	D
Newland Street at Edinger Avenue	.71	C	.62	B
Edwards Street at Heil Avenue	.62	B	.55	A
Goldenwest Street at Heil Avenue	.54	A	.58	A
Gothard Street at Heil Avenue	.56	A	.62	B
Beach Boulevard at Heil Avenue	.78	C	.80	C
Newland Street at Heil Avenue	.51	A	.46	A
Goldenwest Street at Warner Avenue	.68	B	.67	B
Gothard Street at Warner Avenue	.56	A	.77	C
Beach Boulevard at Warner Avenue	.69	B	.89	D
Newland Street at Warner Avenue	.81	D	.87	D
Goldenwest Street at Slater Avenue	.74	C	.79	C
Gothard Street at Slater Avenue	.68	B	.61	B
Beach Boulevard at Slater Avenue	.80	C	.82	D
Newland Street at Slater Avenue	.57	A	.61	B
Gothard Street at Talbert Avenue	.48	A	.69	B
Beach Boulevard at Talbert Avenue	.70	B	**.94**	**E**
Newland Street at Talbert Avenue	.60	A	.69	B
Goldenwest Street at Ellis Avenue	.40	A	.50	A
Gothard Street at Ellis Avenue	.39	A	.39	A
Delaware Street at Ellis Avenue	.29	A	.49	A
Beach Boulevard at Ellis Avenue	.54	A	.64	B
Newland Street at Ellis Avenue	.47	A	.47	A
Main Street at Ellis Avenue	.27	A	.37	A
Delaware Street at Main Street	.30	A	.42	A
Goldenwest Street at Garfield Avenue	.44	A	.45	A
Gothard Street at Garfield Avenue	.34	A	.34	A
Main Street at Garfield Avenue	.28	A	.37	A
Delaware Street at Garfield Avenue	.58	A	.51	A
Beach Boulevard at Garfield Avenue	.61	B	.81	D
Newland Street at Garfield Avenue	.48	A	.53	A
Magnolia Street at Garfield Avenue	.54	A	.62	B

Table 4.13-1 Existing Level of Service Summary

Intersection	AM Peak Hour		PM Peak Hour	
	ICU	LOS	ICU	LOS
Bushard Street at Garfield Avenue	.49	A	.53	A
Brookhurst Street at Garfield Avenue	.50	A	.70	B
Ward Street at Garfield Avenue	.75	C	.48	A
Goldenwest Street at Yorktown Avenue	.47	A	.71	C
Main Street at Yorktown Avenue	.51	A	.56	A
Lake Street at Yorktown Avenue	.46	A	.45	A
Delaware Street at Yorktown Avenue	.43	A	.40	A
Beach Boulevard at Yorktown Avenue	.60	A	.79	C
Newland Street at Yorktown Avenue	.55	A	.60	A
Magnolia Street at Yorktown Avenue	.52	A	.47	A
Bushard Street at Yorktown Avenue	.46	A	.44	A
Brookhurst Street at Yorktown Avenue	.44	A	.61	B
Beach Boulevard at Adams Avenue	.57	A	.75	C
Newland Street at Adams Avenue	.57	A	.65	B
Magnolia Street at Adams Avenue	.76	C	.77	C
Bushard Street at Adams Avenue	.59	A	.65	B
Brookhurst Street at Adams Avenue	.88	D	.86	D
Beach Boulevard at Indianapolis	.49	A	.50	A
Newland Street at Indianapolis	.36	A	.41	A
Magnolia Street at Indianapolis	.65	B	.41	A
Bushard Street at Indianapolis	.45	A	.30	A
Brookhurst at Indianapolis	.36	A	.40	A
Beach Boulevard at Atlanta Avenue	.46	A	.66	B
Newland Street at Atlanta Avenue	.41	A	.47	A
Magnolia Street at Atlanta Avenue	.51	A	.46	A
Bushard Street at Atlanta Avenue	.47	A	.35	A
Brookhurst Street at Atlanta	.42	A	.44	A
Newland Street at Hamilton Avenue	.41	A	.56	A
Magnolia Street at Hamilton Avenue	.47	A	.59	A
Bushard Street at Hamilton Avenue	.38	A	.40	A
Brookhurst Street at Hamilton Avenue	.68	B	.67	B
Magnolia Street at Banning Avenue	.20	A	.22	A
Bushard Street at Banning Avenue	.23	A	.20	A
Brookhurst Street at Banning Avenue	.23	A	.22	A
Goldenwest Street at Orange Avenue	.28	A	.29	A
Seapoint Avenue at PCH	.68	B	.65	B

Table 4.13-1 Existing Level of Service Summary

Intersection	AM Peak Hour		PM Peak Hour	
	ICU	LOS	ICU	LOS
Beach Boulevard at PCH	.61	B	.72	C
Newland Street at PCH	.68	B	.62	B
Magnolia Street at PCH	.64	B	.66	B
Brookhurst Street at PCH	.67	B	.76	C
City of Westminster				
Beach Boulevard at Westminster	.74	C	.73	C
Beach Boulevard at Hazard Avenue	.64	B	.70	B
Beach Boulevard at Bolsa Avenue	.81	D	.79	C
Beach Boulevard at McFadden Avenue	.78	C	.81	D
Newland Street at Bolsa Avenue	.51	A	.58	A
Newland Street at McFadden Avenue	.58	A	.60	A
City of Fountain Valley				
Magnolia Street at Warner Avenue	.71	C	.77	C
Magnolia Street at Slater Avenue	.70	B	.71	C
Magnolia Street at Talbert Avenue	.77	C	.69	B
Magnolia Street at Ellis Avenue	.52	A	.62	B
Bushard Street at Talbert Avenue	.66	B	.72	C
Bushard Street at Ellis Avenue	.53	A	.51	A
Brookhurst Street at Talbert Avenue	.72	C	.74	C
Brookhurst Street at Ellis Avenue	.62	B	.67	B
HIGHWAY CAPACITY MANUAL (HCM) DELAY (CALTRANS INTERSECTIONS)				
Intersection	AM Peak Hour		PM Peak Hour	
	Delay	LOS	Delay	LOS
I-405 SB at Center Avenue	31	C	35	C
Beach Boulevard at Center Avenue	10	A	17	B
Beach Boulevard at Edinger Avenue	**59**	**E**	**57**	**E**
Beach Boulevard at Heil Avenue	21	C	16	B
Beach Boulevard at Warner Avenue	49	D	42	D
Beach Boulevard at Slater Avenue	44	D	48	D
Beach Boulevard at Talbert Avenue	38	D	**60**	**E**
Beach Boulevard at Ellis Avenue	35	D	37	D
Beach Boulevard at Garfield Avenue	35	D	46	D
Beach Boulevard at Yorktown Avenue	35	D	42	D
Beach Boulevard at Adams Avenue	36	D	43	D
Beach Boulevard at Indianapolis Avenue	25	C	21	C
Beach Boulevard at Atlanta Avenue	36	D	39	D
Beach Boulevard at PCH	31	C	26	C

Table 4.13-1 Existing Level of Service Summary

Intersection	AM Peak Hour		PM Peak Hour	
	Delay	LOS	Delay	LOS
Newland Street at PCH	23	C	17	B
Magnolia Street at PCH	25	C	19	B
Brookhurst Street at PCH	31	C	31	C
Beach Boulevard at Westminster Avenue	34	C	39	D
Beach Boulevard at Hazard Avenue	25	C	28	C
Beach Boulevard at Bolsa Avenue	40	D	41	D
Beach Boulevard at McFadden Avenue	39	D	44	D

SOURCE: Austin-Foust Associates Inc., *City of Huntington Beach Boulevard and Edinger Avenue Corridor Specific Plan Traffic Study*, August 2009, Table 2-1.

Bold font denotes AM or PM peak hour deficiency.

Table 4.13-1 shows all intersections to be operating at LOS D or better with the exception of Beach Boulevard at Talbert Avenue during the PM peak hours using ICU values. Additionally, Beach Boulevard at Edinger Avenue shows an operational deficiency as evidenced by the LOS E obtained using the HCM methodology. The LOS values for the Caltrans intersections are generally similar to those calculated using ICU values. One exception is the intersection of Beach Boulevard at Edinger Avenue, where the theoretical ICU indicates LOS D in the PM peak hour, while the operational LOS is E as indicated by the HCM results. This is due to eastbound and northbound lane utilization being less than optimum, as assumed in the ICU calculations. The eastbound traffic is concentrated in the right lane in preparation for accessing the I-405 southbound freeway ramp. The northbound traffic merges from four lanes to three through lanes just prior to the intersection (the fourth lane becomes a right turn lane). This merge plus local driveway traffic weaving against traffic in the right turn lane causes flow rates to deteriorate such that queuing occurs at peak times.

Existing conditions on the freeway ramps that would be affected by the proposed project are summarized in Table 4.13-2 (Existing I-405 Freeway Ramp V/C Summary). All of the interchanges identified in Table 4.13-2 have one lane. The I-405 northbound loop ramp at Beach Boulevard exceeds the V/C threshold of 1.0 in both the AM and PM peak hours.

Committed Improvements

The "committed" roadway network used in this project's analysis represents the existing roadways plus currently programmed improvements to the city's arterial system (i.e., projects that are fully funded and thereby have reasonable assurance of being completed by the year 2016). The same assumptions are used in both the 2016 and 2030 analysis. Table 4.13-3 (Committed Roadway Improvements) summarizes the committed freeway improvements for the regional highway system and the committed arterial improvements for the City of Huntington Beach. The freeway improvements are those included in the Orange County Measure M renewal projects and are thereby considered to be in place by 2030. Even though they are not currently fully funded, the traffic analysis assumes the additional mainline lanes for

the I-405 Freeway widening as part of the committed improvements; however, the related intersection improvements at the ramp interchanges are not assumed.

Table 4.13-2 Existing I-405 Freeway Ramp V/C Summary

Interchange	Ramp	Peak Hour Capacity	AM Peak Hour			PM Peak Hour		
			Volume	V/C	LOS	Volume	V/C	LOS
I-405 at Goldenwest Street	NB Loop On	1,500	690	.46	A	790	.53	A
	SB Off	1,500	370	.25	A	550	.37	A
	SB On	900	340	.38	A	470	.52	A
I-405 at Bolsa Avenue	NB Loop Off	1,500	1,070	.71	C	890	.59	A
	SB Loop Off	1,500	160	.11	A	130	.09	A
	SB On	1,500	300	.20	A	790	.53	A
I-405 at Beach Boulevard	NB Loop On	900	1,240	**1.38**	**F**	1,510	**1.68**	**F**
	NB Loop Off	1,200	690	.58	A	880	.73	C
I-405 at Center Avenue	SB On	1,800	360	.20	A	960	.53	A
	SB Off	1,500	950	.63	B	1,130	.75	C
I-405 at Edinger Avenue	SB On	1,080	570	.53	A	570	.53	A
I-405 at Magnolia Avenue	NB Loop On	900	610	.68	B	370	.41	A
	SB Off	1,500	210	.14	A	1,060	.71	C
I-405 at Warner Avenue	NB Loop Off	1,500	570	.38	A	750	.50	A
	SB On	1,800	760	.42	A	310	.17	A

SOURCE: Austin-Foust Associates Inc., *City of Huntington Beach Boulevard and Edinger Avenue Corridor Specific Plan Traffic Study*, August 2009, Table 2-2.

Bold font denotes deficiency.

Table 4.13-3 Committed Roadway Improvements

Roadways	Segment	Improvement
Regional Improvements—Freeway Improvements		
SR-73 Freeway	Spruce Avenue to I-405 Freeway	Widen to provide four general purpose lanes in each direction
I-405 Freeway	Euclid Street to Harbor Boulevard	Widen to provide six general purpose lanes in the southbound direction
I-405 Freeway	Harbor Boulevard to Fairview Street	Widen to provide eight general purpose lanes in the southbound direction
I-405 Freeway	Fairview Street to SR-73 Freeway	Widen to provide seven general purpose lanes in the southbound direction
I-405 Freeway	From I-5 Freeway to SR-55 Freeway	Add one lane in each direction
I-405 Freeway	From SR-73 Freeway to I-605 Freeway	Add one lane in each direction
I-405 Freeway	SR-22 Freeway to I-605 Freeway	Add one HOV lane in each direction
City of Huntington Beach—Roadway Widening		
Atlanta Avenue	Huntington Street to First Street	Widen to 4 lanes
Garfield Avenue	Delaware Street to Florida Street	Widen to 4 lanes
Heil Avenue	Beach Boulevard to Gothard Street	Widen to 4 lanes

Table 4.13-3 Committed Roadway Improvements

Roadways	*Segment*	*Improvement*
Newland Street	Pacific Coast Highway to Hamilton Avenue	Widen 2-lane undivided roadway to 2-lane divided roadway with bike lanes
Pacific View Avenue	Huntington Street to First Street	New Construction: 2 lanes divided
City of Huntington Beach—Intersection Signalization		
Newland Street at Hamilton Avenue		Install traffic signal
Huntington Street at Atlanta Avenue		Install traffic signal

SOURCE: Austin-Foust Associates Inc., *City of Huntington Beach Boulevard and Edinger Avenue Corridor Specific Plan Traffic Study*, August 2009, page 2-14

Table 4.13-4 (Committed Intersection Improvements) summarizes the committed intersection improvements for the city. The majority of the arterial improvements are in the form of intersection augmentation whereby lanes are added to selected intersections.

Table 4.13-4 Committed Intersection Improvements

	Southbound			*Westbound*			*Northbound*			*Eastbound*		
Intersection	*Left*	*Through*	*Right*	*Left*	*Through*	*Right*	*Left*	*Through*	*Right*	*Left*	*Through*	*Right*
Beach Boulevard & Edinger Avenue												
Existing (2006)	2	4	2	1	2	1	2	3	1	2	3	1
Committed Improvement	2	4	2	2	2	1	2	3	1	2	3	1
Beach Boulevard & Heil Avenue												
Existing (2006)	1	4	0	1	1	1	1	4	0	1	2	0
Committed Improvements	1	4	0	1	2	0	1	4	0	1	2	0
Delaware Street & Atlanta Avenue												
Existing (2006)	1	1	1	1	1	1	0	1	1	1	1	0
Committed Improvements	1	1	1	1	2	1	0	1	1	1	2	0

SOURCE: Austin-Foust Associates Inc., *City of Huntington Beach Boulevard and Edinger Avenue Corridor Specific Plan Traffic Study*, August 2009, page 2-15

Gray shading denotes added or changed lane configuration.

Transit Service

The Beach Boulevard and Edinger Avenue Corridors are served by fixed route transit operated by the Orange County Transportation Authority (OCTA). Figure 4.13-3 (Transit Routes 2006) illustrates the lines and routes that service the Specific Plan area. Park-and-ride facilities like the Goldenwest Transportation Center located at Gothard Street and Center Avenue allow commuters to park their personal vehicles and utilize carpools, vanpools, or commuter bus service.

4.13.2 Regulatory Framework

Federal

There are no federal transportation regulations applicable to the proposed project.

State

Statewide Transportation Improvement Program (STIP)

The California Department of Transportation (Caltrans) administers transportation programming. Transportation programming is the public decision-making process that sets priorities and funds projects envisioned in long-range transportation plans. It commits expected revenues over a multi-year period to transportation projects. The STIP is a multi-year capital improvement program of transportation projects on and off the State Highway System, funded with revenues from the State Highway Account and other funding sources.

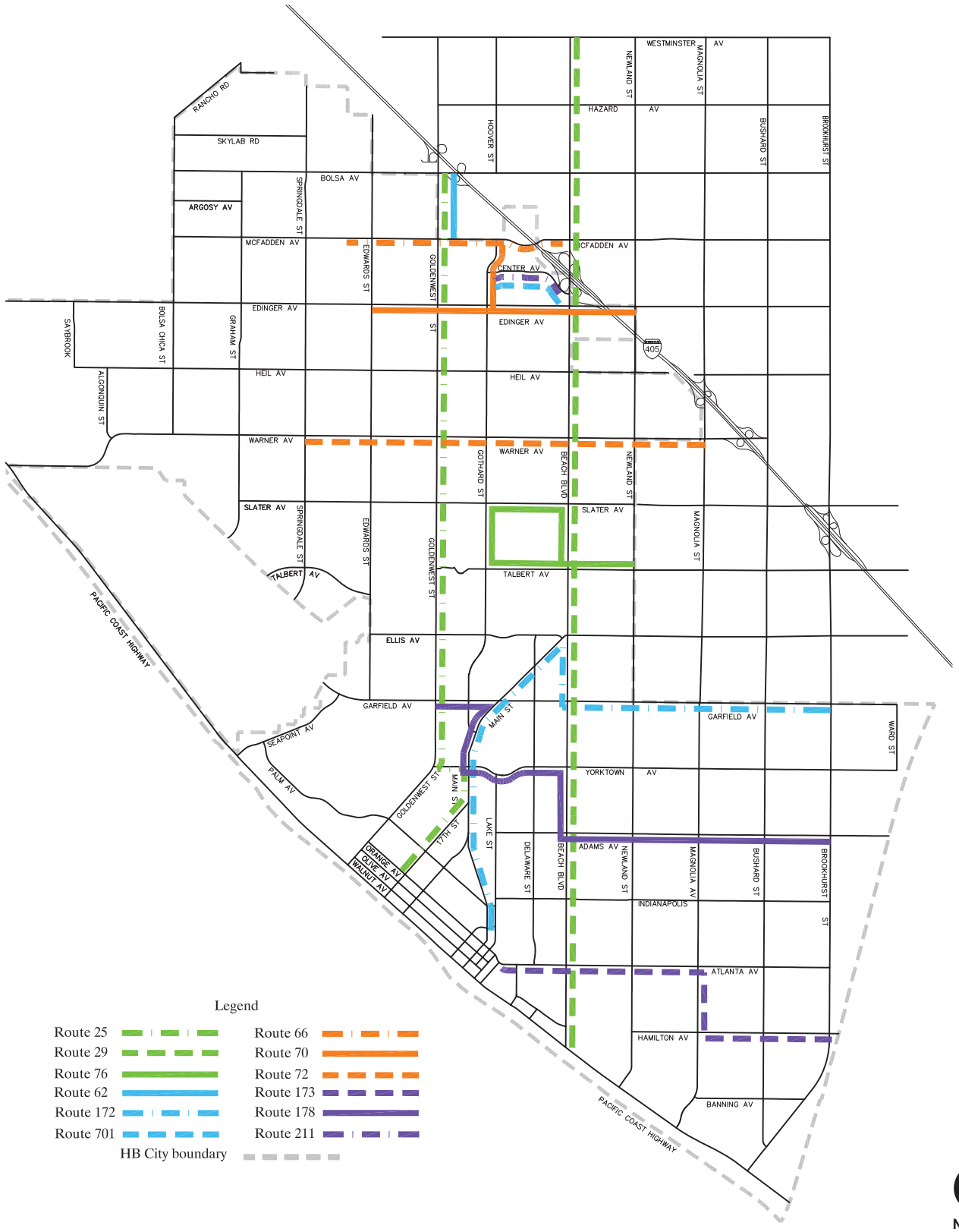
Regional

Regional Comprehensive Plan and Guide

The Southern California Association of Governments (SCAG), which is the designated Metropolitan Planning Organization for six Southern California counties (Ventura, Orange, San Bernardino, Riverside, Imperial, and Los Angeles), is federally mandated to develop plans for transportation, growth management, hazardous waste management, and air quality. SCAG has prepared the RCPG in conjunction with its constituent members and other regional planning agencies. The RCPG is intended to serve as a framework to guide decision-making with respect to the growth and changes that can be anticipated in the region through the year 2015. The Plan consists of five core chapters that contain goals, policies, implementation strategies, and technical data that support three overarching objectives for the region, including (1) improving the standard of living for all, (2) improving the quality of life for all, and (3) enhancing equity and access to government. Local governments are required to use the RCPG as the basis for their own plans.

Orange County Congestion Management Plan

The Orange County Congestion Management Plan (CMP) requires that a traffic impact analysis be conducted for any project generating 2,400 or more daily trips, or 1,600 or more daily trips for projects that directly access the CMP Highway System (HS). Per the CMP guidelines, this number is based on the desire to analyze any impacts that will be three percent or more of the existing CMP highway system facilities' capacity. The CMPHS includes specific roadways, which include State highways and Super Streets, which are now known as Smart Streets, and CMP arterial monitoring locations/intersections. There are five CMP intersections that were evaluated within the traffic study area for the proposed project, which include:



***Source*:** Austin-Foust Associates, Inc., 2009.

FIGURE **4.13-3**

Transit Routes 2006

- Beach Boulevard at Adams Avenue
- Beach Boulevard at Edinger Avenue
- Beach Boulevard at Pacific Coast Highway
- Beach Boulevard at Warner Avenue
- Beach Boulevard at Bolsa Avenue

Therefore, the CMP traffic impact analysis (TIA) requirements relate to the potential impacts only on the specified intersections.

Orange County Growth Management Plan

In August 1988, Orange County adopted a Growth Management Plan, which presents a conceptual framework for coordinating traffic facilities and public facilities and services with new development. The Growth Management Plan also spawned several plans and programs, including the Development Monitoring Program, which evaluates the extent of new development and compliance with phasing requirements, and the Facilities Implementation Plans, which evaluate public facility needs and propose financing mechanisms.

The most comprehensive legislation affecting growth management is Measure M, approved by the County voters in November, 1990, and re-approved in 2006. The measure requires each jurisdiction in the County to adopt a Growth Management Element with specific contents and guidelines.

Local

City of Huntington Beach General Plan Circulation Element

The General Plan includes the Circulation Element within the Infrastructure and Community Services Chapter. The identified trafficway network is designed to serve the future land use pattern and intensities of the General Plan. The Circulation Element also includes policies and programs to enhance the efficiency of the transportation system and to promote use of alternative modes. It recognizes that the automobile will continue to be the most frequently used mode of transportation in the foreseeable future, but it emphasizes transit, neighborhood quality, and bicycle/pedestrian safety. Relevant goals and policies are identified below.

Goal CE 1 Provide a balanced transportation system that supports the policies of the General Plan and facilitates the safe and efficient movement of people and goods throughout the City while providing a balance between economic development and the preservation of residential neighborhoods, and minimizing environmental impacts.

Objective CE 1.2 Ensure adequate capacity for the City's circulation needs while minimizing significant negative environmental impacts.

Policy CE 1.2.1 Enhance circulation system standards for roadway and intersection classifications, right-of-way width, pavement width, design speed, capacity and associated

features such as medians and bicycle lanes.

Policy CE 1.2.2 Develop a circulation system that capitalizes on significant environmental features of the City as identified in the Urban Design and Environmental Resources and Conservation Elements.

Goal CE 2 Provide a circulation system which supports existing, approved and planned land uses throughout the City while maintaining a desired level of service on all streets and at all intersections.

Objective CE 2.1 Comply with City's performance standards for acceptable levels of service.

Policy CE 2.1.1 Maintain a city-wide level of service (LOS) not to exceed LOS "D" for intersections during the peak hours.

Police CE 2.1.3 Identify and improve roadways and intersections that are approaching, or have reached, unacceptable levels of service.

Objective CE 2.3 Ensure that the location, intensity and timing of new development is consistent with the provision of adequate transportation infrastructure and standards as defined in the Land Use Element.

Policy CE 2.3.1 Require development projects to mitigate off-site traffic impacts and pedestrian, bicycle, and vehicular conflicts to the maximum extent feasible.

Policy CE 2.3.2 Limit driveway access points and require adequate driveway widths onto arterial roadways and require driveways be located to ensure the smooth and efficient flow of vehicles, bicycles, and pedestrians.

Policy CE 2.3.4 Require that new development mitigate its impact on City streets, including but not limited to, pedestrian, bicycle, and vehicular conflicts, to maintain adequate levels of service.

Objective CE 3.2 Encourage new development that promotes and expands the use of transit services.

Policy CE 3.2.1 Require developers to include transit facilities, such as park-and-ride sites, bus benches, shelters, pads, or turn-outs in their development plans, where feasible as specified in the City's TDM ordinance.

Goal CE 4 Encourage and develop a transportation demand management (TDM) system to assist in mitigating traffic impacts and in maintaining a desired level of service on the circulation system.

Objective CE 4.1 Pursue transportation management strategies that can maximize vehicle occupancy, minimize average trip length, and reduce the number of vehicle trips.

Policy CE 4.1.3 Encourage the use of multiple-occupancy vehicle programs for shopping and other uses to reduce mid-day traffic.

Goal CE 5 Provide sufficient, well-designed, and convenient on- and off-street parking facilities throughout the City.

Objective CE 5.1 Balance the supply with the demand for parking.

Policy CE 5.1.1 Maintain an adequate supply of parking that supports present level of demand and allow for the expected increase in private transportation use.

Policy CE 5.1.2 Provide safe and convenient parking that has minimal impacts on the natural environment, the community image, and the quality of life.

Goal CE 6 Provide a city-wide system of efficient and attractive pedestrian, equestrian, and waterway facilities for commuter, school, and recreational use.

Objective CE 6.1 Promote the safety of bicyclists and pedestrians by adhering to Caltrans and City-wide standards.

Policy CE 6.1.6 Maintain existing pedestrian facilities and require new development to provide pedestrian walkways and bicycle routes between developments, schools, and public facilities.

Policy CE 6.1.7 Require new development to provide accessible facilities to the elderly and disabled.

Policy CE 6.1.10 Implement appropriate traffic devices and operational programs throughout the community to ensure that conflicts between pedestrians, bicycles, and

vehicles are minimized and safety enhanced.

General Plan Growth Management Element

The Growth Management Element of the Community Development Chapter of the City's General Plan contains policies for the planning and provisions of traffic improvements, public services, and public facilities necessary for orderly growth and development in the City. In addition, the Element sets forth minimum standards and levels of service while identifying programs to ensure policy implementation, including phasing, funding, and monitoring.

Goal 1 Reduce traffic congestion.

Goal 2 Ensure that adequate transportation and public facilities and public services are provided for existing and future residents of the City.

Objective Provide a transportation system that ensures safe and efficient movement of people and goods.

Policy 5.3.4 Establish level of service (LOS) "D" as the minimum acceptable standard on arterial intersections except those intersections included on the Deficient Intersection List established by Public Works.

Goal 3 Provide a circulation system that meets the service demands of planned development and minimizes congestion.

Objective Establish minimum standards for traffic circulation and provide a means to ensure that those standards are met and maintained.

Policy 3.1.8 Promote traffic reduction strategies including alternate travel modes, alternate work hours, and a decrease in the number of vehicle trips throughout the city.

Consistency Analysis

The proposed project extends along Beach Boulevard from Edinger Avenue to just south of Atlanta Avenue, and along Edinger Avenue from Goldenwest Street to Beach Boulevard. Alternative modes of transportation would be accessible for both patrons of the commercial uses within the project area, as well residents of any future development. The OCTA transit center is located at the northern end of the project area along Center Avenue near Gothard Street and provides a convenient location for future residents to make trips using transit. The walkability of the surrounding area, as well as the easy access to transit facilities would promote objectives relating to traffic reduction and increase reliance on alternative modes of transportation included in the Circulation Element and the Growth Management Element of the City's General Plan.

As noted below under Impact 4.13-1 and Impact 4.13-2, most of the intersections within the study area would operate at acceptable levels of service with the implementation of mitigation measures. Therefore, the proposed project would meet acceptable minimum standards as stated in Policy 5.3.4, and therefore, would not conflict with this policy. Additionally, the proposed project would be considered consistent with the Goals and Policies of the Huntington Beach General Plan.

4.13.3 Project Impacts and Mitigation

Analytic Method

Intersection Analysis

As stated previously, ICU analysis has been performed at all study area intersections. ICU values are used to determine levels of service at study area intersection locations and provide a means to quantitatively estimate incremental traffic impacts. To calculate the ICU value for an intersection, the volume of traffic using the intersection is compared with the capacity of the intersection. The ICU is usually expressed as a decimal percent (e.g., 0.86). The decimal percent represents that portion of the hour required to provide sufficient capacity to accommodate all intersection traffic if all approaches operate at capacity. The ICU-based LOS is defined below on Table 4.13-5 (ICU Level of Service).

Table 4.13-5 ICU Level of Service

Level of Service	*Intersection Capacity Utilization (ICU) Value*
A	0–0.60
B	0.61–0.70
C	0.71–0.80
D	0.81–0.90
E	0.91–1.00
F	> 1.00

SOURCE: Austin-Foust Associates Inc., *City of Huntington Beach Boulevard and Edinger Avenue Corridor Specific Plan Traffic Study*, August 2009, Table 1-1

For Caltrans intersections (along Beach Boulevard), the delay-based methodology contained in the HCM is also used. This methodology estimates the average total delay for each of the traffic movements and determines the LOS for each movement. The overall average delay is measured in seconds per vehicle, and LOS is then calculated for the entire intersection. The HCM-based LOS is defined below in Table 4.13-6 (Definitions of Levels of Service for Intersections).

Levels of service for signalized intersections are defined in terms of control delay as follows:

- LOS A describes operations with low control delay, up to 10 seconds per vehicle. This LOS occurs when progression is extremely favorable and most vehicles arrive during the green phase. Many vehicles do not stop at all. Short cycle lengths may tend to contribute to low delay values.

Table 4.13-6 Definitions of Levels of Service for Intersections

Level of Service	*Average Delay (seconds)*
A	0–10.00
B	10.01–20
C	20.01–35
D	35.01–55
E	55.01–80
F	80.01 or more

SOURCE: Austin-Foust Associates Inc., *City of Huntington Beach Boulevard and Edinger Avenue Corridor Specific Plan Traffic Study*, August 2009, Table 1-1

- LOS B describes operations with control delay greater than 10 and up to 20 seconds per vehicle. This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than the LOS A, causing higher levels of delay.
- LOS C describes operations with control delay greater than 20 seconds and up to 35 seconds per vehicle. These higher delays may result from only fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. Cycle failure occurs when a given green phase does not serve queued vehicles, and overflows occur. The number of vehicles stopping is significant at this level, though may still pass through the intersection without stopping.
- LOS D describes operations with control delay greater than 35 and up to 55 seconds per vehicle. At LOS D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, and high V/C ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.
- LOS E describes operations with control delay greater than 55 and up to 80 seconds per vehicle. These high delay values generally indicate poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent.
- LOS F describes operations with control delay in excess of 80 seconds per vehicle. This level, considered unacceptable to most drivers, often occurs with oversaturation, that is, when arrival flow rates exceed the capacity of lane groups. It may also occur at high V/C ratios with many individual cycle failures. Poor progression and long cycle lengths may also contribute significantly to high delay levels.

The definitions of LOS for interrupted traffic flow (flow restrained by the existence of traffic signals and other traffic control devices) differ slightly depending on the type of traffic control. As stated previously, the Cities of Huntington Beach, Westminster, and Fountain Valley consider LOS D acceptable, whereas LOS E is the performance standard for the CMP intersections.

The criterion for a significant impact is an ICU increase of one percent or more. A determination is carried out by summing the project traffic ICU contribution to each critical movement in the ICU calculation to three decimal places (i.e., one decimal place for a percentage value). For a Caltrans intersection, a significant impact occurs when the intersection is at LOS "E" or "F" and the project adds traffic to the intersection.

Project Traffic

The traffic related to the proposed project has been calculated in accordance with the following accepted procedural steps:

- Trip Generation
- Trip Distribution

These steps are described in detail below.

Project Trip Generation

Trip generation represents the amount of traffic attracted to and produced by a development. The trip generation for the Specific Plan is summarized in Table 4.13-7 (Project Trip Generation Summary), along with the existing land uses and the future land uses that would occur under the current General Plan. A detailed land use and trip generation summary, including trip generation rate sources, can be found in Appendix D of the traffic study (Appendix F1). It should be noted that the Specific Plan shows a reduction in existing commercial and office uses. This is due to changes in standards incorporated into the Specific Plan that are likely to result in existing uses converting to residential uses in certain parts of the Specific Plan area.

As can be seen from the trip generation results in Table 4.13-7, the Specific Plan generates fewer AM peak hour trips (17,371 trips versus 18,435 trips) and significantly fewer PM peak hour trips (23,227 trips versus 26,533 trips) and daily trips (294,282 trips versus 353,965 trips) than the General Plan land uses for the Specific Plan area. The increase of 6,400 residential units under the Specific Plan does cause an increase in the AM peak hour outbound trips, although as noted previously, the overall AM peak hour total (17,371 trips) is lower than the current General Plan total (18,435 trips).

Project Trip Distribution

The trip distribution and assignment process represents the directional orientation of traffic to and from the individual parcels within the Specific Plan. Trip distribution is influenced by existing travel patterns, the geographic location of the individual parcels, the location of residential areas, commercial and recreational opportunities, and the proximity of the regional freeway system. The geographic distribution of trips in the study area to and from the project was estimated using distribution patterns derived from the Huntington Beach Traffic Model (HBTM). The resulting project trip distribution pattern is illustrated in Figure 4.13-4 (Project Trip Distribution). It is based on the distribution of daily trips generated by the project as assigned to the study area street system. Peak hour project trips differ slightly with respect to their distribution patterns, as do the inbound versus outbound distribution of those peak hour project trips. These differences are reflected in the actual project volumes used in the impact analysis.

Table 4.13-7 Project Trip Generation Summary

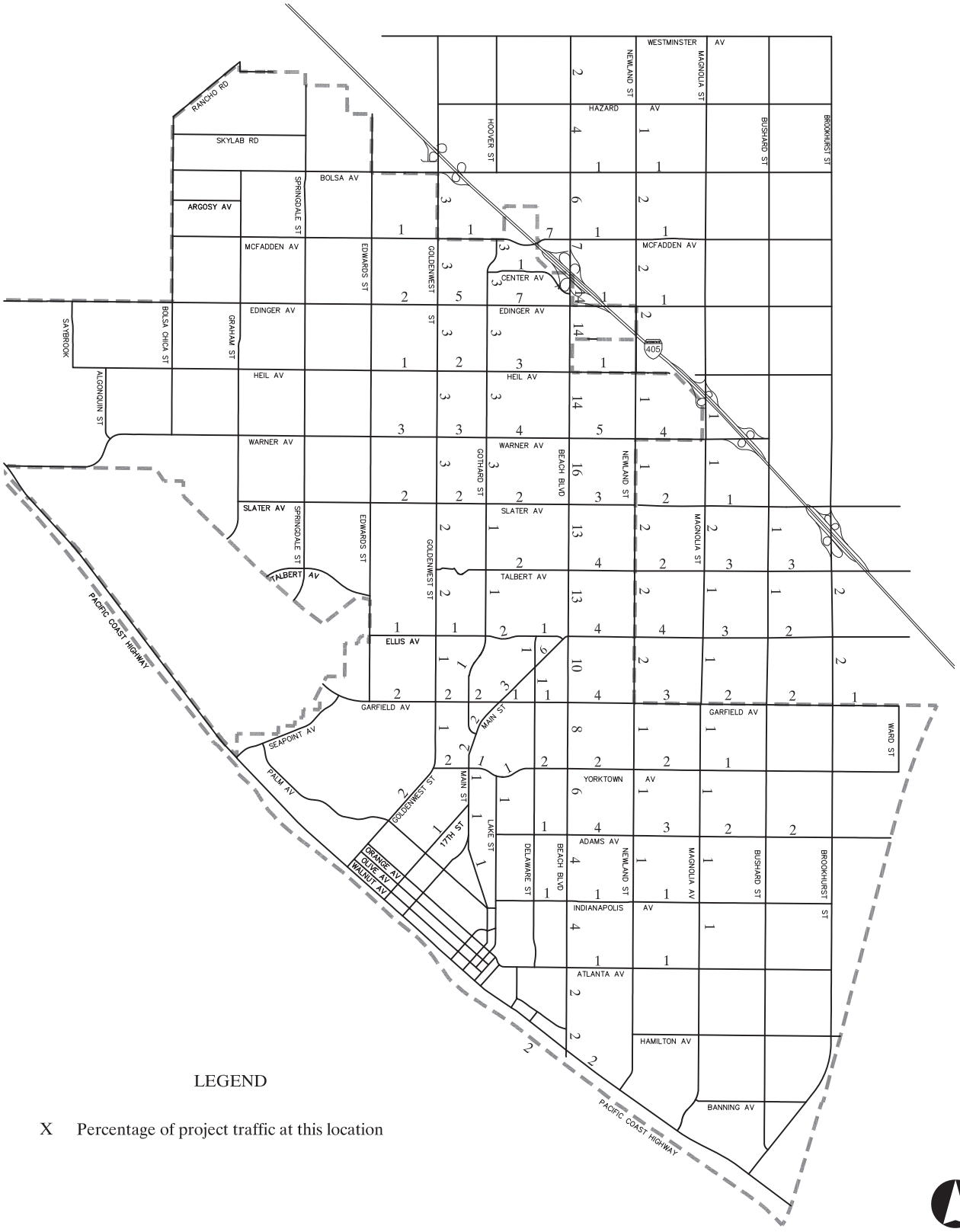
Project Description	Amount	Peak Hour						ADT
		AM			PM			
		In	Out	Total	In	Out	Total	
Existing Development								
Residential	5,700 DU	885	2,848	3,733	3,051	1,760	4,811	47,478
Commercial	3,820 TSF	4,662	4,128	8,790	6,598	6,836	13,434	201,405
Office	1,109 TSF	1,504	213	1,717	285	1,374	1,659	12,296
Industrial	440 TSF	304	66	370	79	299	378	3,064
Other	—	297	70	367	154	276	430	4,536
Existing Trip Generation Total		***7,652***	***7,325***	***14,977***	***10,167***	***10,545***	***20,712***	***268,779***
Current General Plan (Revised April 2009)								
Residential	6,063 DU	851	2,880	3,731	3,026	1,727	4,753	47,891
Commercial	5,728 TSF	6,550	5,746	12,296	9,504	9,813	19,317	285,923
Office	989 TSF	1,347	189	1,536	248	1,227	1,475	10,887
Industrial	500 TSF	345	75	420	90	340	430	3,483
Other	—	361	91	452	241	356	558	5,781
General Plan Trip Generation Total		***9,454***	***8,981***	***18,435***	***13,070***	***13,463***	***26,533***	***353,965***
Specific Plan								
Residential	12,100 DU	1,501	5,431	6,932	5,553	3,129	8,682	89,790
Commercial	3,642 TSF	4,371	3,880	8,251	6,026	6,239	12,265	185,518
Office[a]	844 TSF	1,146	163	1,309	215	1,046	1,261	9,318
Industrial	440 TSF	304	66	370	79	299	378	3,064
Other	—	404	105	509	232	409	641	6,592
Specific Plan Trip Generation Total		***7,726***	***9,645***	***17,371***	***12,105***	***11,122***	***23,227***	***294,282***
Increment over Existing Land Uses		74	2,320	2,394	1,938	577	2,515	25,503
Increment over Current General Plan		-1,728	664	-1,064	-965	-2,341	-3,306	-59,683

SOURCE: Austin-Foust Associates Inc., *City of Huntington Beach Boulevard and Edinger Avenue Corridor Specific Plan Traffic Study*, August 2009, Table 3-1

ADT = average daily traffic; DU = dwelling unit; TSF = thousand square feet

a. The Specific Plan shows a net reduction in office square footage due to the addition of residential units that replace existing non-residential square footage. Appendix D of the Traffic Study (included as Appendix F1 to the EIR) shows a zonal breakdown of the land use assumptions.

The comparative with and without project volumes used in the analysis are derived from the HBTM. This process is different from that used for small projects whereby the project trip generation is simply multiplied by the trip distribution values and the trips assigned to the study area roadway network. When using a traffic-forecasting model to produce future traffic projections with and without the proposed project, separate runs of the traffic model are performed with and without the project land uses. These separate runs assume that no changes occur to the surrounding land uses or to traffic generation outside the project area. While there is a net increase in traffic locally due to the project, many trips within the



LEGEND

X Percentage of project traffic at this location

NORTH
NOT TO SCALE

***Source*:** Austin-Foust Associates, Inc., 2009.

FIGURE **4.13-4**
Project Trip Distribution

study area are redirected to the project site and are not necessarily "new" trips as far as the study area is concerned. Hence, under this process, the project traffic is not merely added to No Project traffic conditions, but instead the project trips interact with surrounding land uses in a manner that changes the trip distribution patterns of those land uses. These effects are often referred to as "pass-by trips" or redirected trips, and portray the actual differences in traffic volumes that occur in some future point in time with and without the project. In a similar manner, the traffic model estimates future volumes for the Specific Plan versus the General Plan land uses in the study area. Different traffic patterns occur with each set of land uses, and these are depicted both locally and regionally with the modeling procedures applied here.

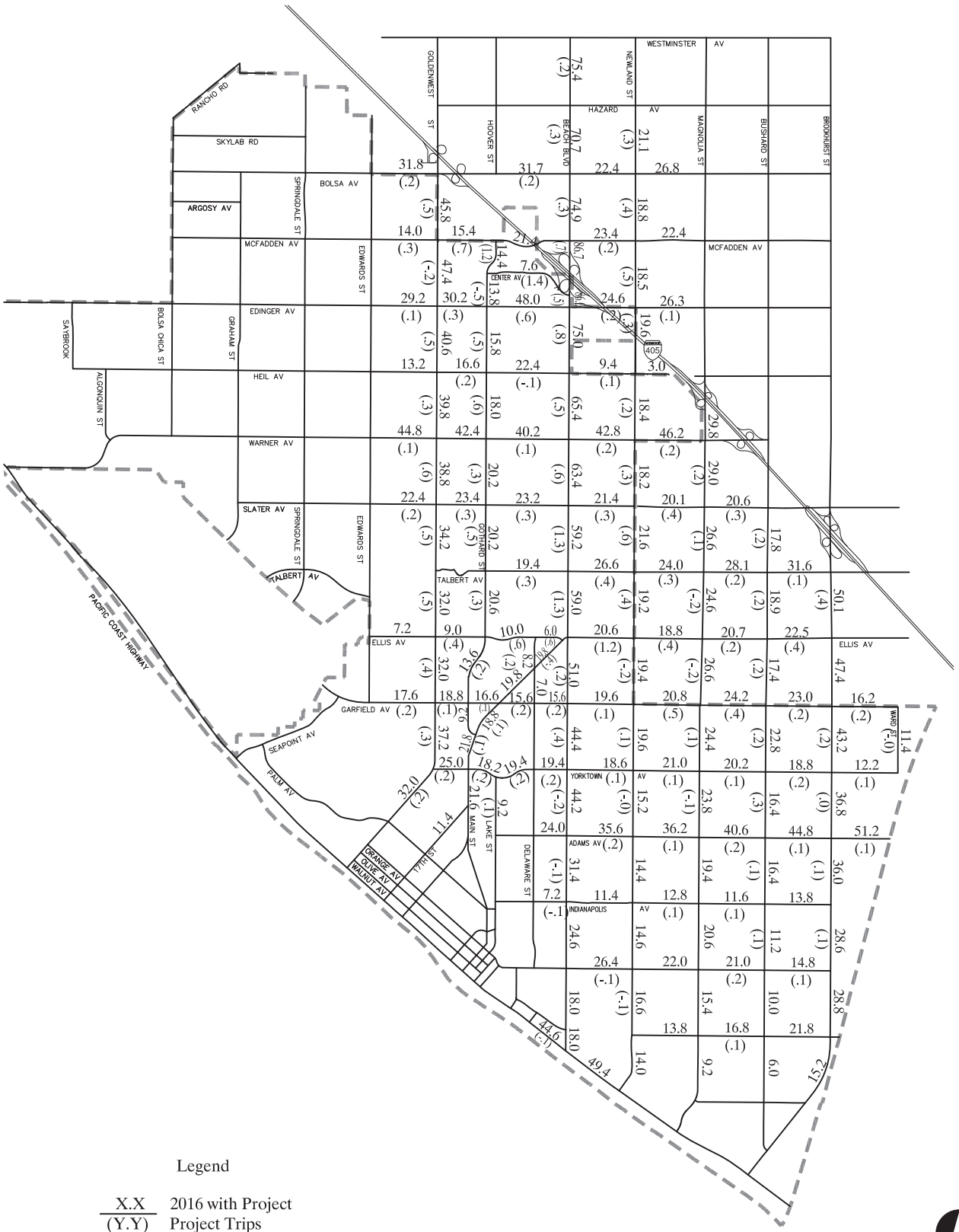
Short-Range (2016) Conditions

The short-range analysis compares no development or redevelopment of the project site (i.e., existing uses) to buildout of the Specific Plan. While it is acknowledged that actual buildout may not occur until after 2016, the assumption of full buildout by 2016 has been assumed in the traffic analysis thereby giving the equivalent of an existing plus project evaluation for CEQA purposes. Average daily traffic (ADT) volumes for 2016 are illustrated in Figure 4.13-5 (2016 ADT Volumes ['000s]). Figure 4.13-5 shows the with-project volumes and the project contribution on the study area street network. The two sets of forecasts were derived using the HBTM. The corresponding peak hour with- and without-project intersection volumes were derived in the same manner and used to identify project impacts.

A summary of 2016 with and without project intersection capacity utilization (ICU) values is given in Table 4.13-8 (2016 Intersection Level of Service Summary). Five intersections show a potential project impact as the with-project ICU increases by .01 or more and the intersection is at LOS E or F. A determination was then made as to whether the project ICU contributions amounted to an ICU increase of 1.0 percent or more in order to identify significant impacts (i.e., project impacts). This evaluation was performed by summing the project traffic ICU contribution to each critical movement in the ICU calculation. Table 4.13-9 (2016 Project ICU Contribution [No Project versus Project]) summarizes the significant project contribution, of which the project has a significant project contribution at four locations. The sole location that does not have a significant project contribution is a Caltrans intersection and is discussed in a later section.

Long-Range (2030) Conditions

The long-range analysis is in two parts. The first compares 2030 conditions under the Specific Plan land uses to those under the corresponding General Plan land uses in the project area. A second part of the analysis provides a cumulative impact evaluation of the project, identifying locations where the project has a significant contribution to a cumulative deficiency. In this case, the project contribution is based on Specific Plan land uses versus existing land uses (i.e., future development in the Specific Plan area).



***Source*:** Austin-Foust Associates, Inc., 2009.

FIGURE **4.13-5**

2016 ADT Volumes ('000s)

Table 4.13-8 2016 Intersection Level of Service Summary

Intersection	No Project				With Project			
	AM		PM		AM		PM	
	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS
City of Huntington Beach								
Springdale Street at Bolsa Avenue	.70	B	.75	C	.71	C	.74	C
Edwards Street at Bolsa Avenue	.61	B	.69	B	.61	B	.70	B
Goldenwest Street at Bolsa Avenue	.79	C	**.97**	**E**	.83	D	**.97**	**E**
Springdale Street at McFadden Avenue	.66	B	.78	C	.65	B	.77	C
Edwards Street at McFadden Avenue	.66	B	.60	A	.69	B	.60	A
Goldenwest Street at McFadden Avenue	.73	C	.75	C	.72	C	.80	C
Gothard Street at McFadden Avenue	.58	A	.60	A	.58	A	.61	B
Gothard Street at Center Avenue	.32	A	.53	A	.34	A	.56	A
I-405 SB Ramps at Center Avenue	.46	A	.81	D	.47	A	.81	D
Beach Boulevard at Center Avenue	.71	C	.72	C	.70	B	.73	C
Springdale Street at Edinger Avenue	.69	B	.59	A	.72	C	.59	A
Edwards Street at Edinger Avenue	.64	B	.61	B	.64	B	.62	B
Goldenwest Street at Edinger Avenue	.64	B	.69	B	.65	B	.69	B
Gothard Street at Edinger Avenue	.53	A	.61	B	.53	A	.66	B
Beach Boulevard at Edinger Avenue	.79	C	**.93**	**E**	.84	D	**.94**	**E**
Newland Street at Edinger Avenue	.80	C	.73	C	.82	D	.73	C
Edwards Street at Heil Avenue	.65	B	.56	A	.66	B	.57	A
Goldenwest Street at Heil Avenue	.60	A	.60	A	.60	A	.61	B
Gothard Street at Heil Avenue	.65	B	.73	C	.66	B	.73	C
Beach Boulevard at Heil Avenue	.82	D	.89	D	.82	D	**.91**	**E**
Newland Street at Heil Avenue	.57	A	.56	A	.56	A	.56	A
Goldenwest Street at Warner Avenue	.72	C	.72	C	.72	C	.72	C
Gothard Street at Warner Avenue	.61	B	.78	C	.62	B	.81	D
Beach Boulevard at Warner Avenue	.72	C	**.92**	**E**	.74	C	**.93**	**E**
Newland Street at Warner Avenue	.86	D	.89	D	.90	D	.90	D
Goldenwest Street at Slater Avenue	.79	C	**.91**	**E**	.82	D	**.91**	**E**
Gothard Street at Slater Avenue	.75	C	.65	B	.78	C	.66	B
Beach Boulevard at Slater Avenue	.83	D	.85	D	.85	D	.87	D
Newland Street at Slater Avenue	.62	B	.66	B	.63	B	.69	B
Gothard Street at Talbert Avenue	.53	A	.80	C	.53	A	.82	D
Beach Boulevard at Talbert Avenue	.76	C	**.98**	**E**	.78	C	**.98**	**E**
Newland Street at Talbert Avenue	.65	B	.82	D	.65	B	.84	D
Goldenwest Street at Ellis Avenue	.44	A	.52	A	.46	A	.57	A
Gothard Street at Ellis Avenue	.48	A	.43	A	.49	A	.43	A

Table 4.13-8 2016 Intersection Level of Service Summary

Intersection	No Project				With Project			
	AM		PM		AM		PM	
	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS
Delaware Street at Ellis Avenue	.33	A	.51	A	.33	A	.51	A
Beach Boulevard at Ellis Avenue	.61	B	.67	B	.63	B	.75	C
Newland Street at Ellis Avenue	.52	A	.54	A	.54	A	.57	A
Main Street at Ellis Avenue	.29	A	.40	A	.30	A	.43	A
Delaware Street at Main Street	.36	A	.46	A	.36	A	.48	A
Goldenwest Street at Garfield Avenue	.47	A	.53	A	.49	A	.52	A
Gothard Street at Garfield Avenue	.39	A	.39	A	.40	A	.40	A
Main Street at Garfield Avenue	.32	A	.41	A	.32	A	.41	A
Delaware Street at Garfield Avenue	.65	B	.62	B	.63	B	.64	B
Beach Boulevard at Garfield Avenue	.68	B	.88	D	.70	B	**.94**	**E**
Newland Street at Garfield Avenue	.50	A	.56	A	.52	A	.58	A
Magnolia Street at Garfield Avenue	.64	B	.69	B	.67	B	.71	C
Bushard Street at Garfield Avenue	.52	A	.64	B	.54	A	.67	B
Brookhurst Street at Garfield Avenue	.65	B	.79	C	.65	B	.81	D
Ward Street at Garfield Avenue	.79	C	.53	A	.83	D	.54	A
Goldenwest Street at Yorktown Avenue	.53	A	.76	C	.54	A	.77	C
Main Street at Yorktown Avenue	.58	A	.57	A	.59	A	.58	A
Lake Street at Yorktown Avenue	.48	A	.48	A	.48	A	.50	A
Delaware Street at Yorktown Avenue	.48	A	.43	A	.48	A	.44	A
Beach Boulevard at Yorktown Avenue	.64	B	.87	D	.64	B	.87	D
Newland Street at Yorktown Avenue	.66	B	.74	C	.65	B	.77	C
Magnolia Street at Yorktown Avenue	.59	A	.57	A	.59	A	.59	A
Bushard Street at Yorktown Avenue	.56	A	.54	A	.57	A	.57	A
Brookhurst Street at Yorktown Avenue	.53	A	.66	B	.53	A	.66	B
Beach Boulevard at Adams Avenue	.65	B	.82	D	.65	B	.82	D
Newland Street at Adams Avenue	.63	B	.69	B	.64	B	.69	B
Magnolia Street at Adams Avenue	.82	D	.79	C	.82	D	.79	C
Bushard Street at Adams Avenue	.71	C	.75	C	.71	C	.76	C
Brookhurst Street at Adams Avenue	**1.00**	**E**	**.98**	**E**	**1.02**	**F**	**.98**	**E**
Beach Boulevard at Indianapolis	.56	A	.54	A	.56	A	.54	A
Newland Street at Indianapolis	.46	A	.48	A	.46	A	.50	A
Magnolia Street at Indianapolis	.74	C	.44	A	.76	C	.45	A
Bushard Street at Indianapolis	.48	A	.37	A	.48	A	.38	A
Brookhurst at Indianapolis	.37	A	.47	A	.38	A	.48	A
Beach Boulevard at Atlanta Avenue	.55	A	.79	C	.56	A	.79	C
Newland Street at Atlanta Avenue	.50	A	.53	A	.51	A	.53	A

Table 4.13-8 2016 Intersection Level of Service Summary

Intersection	No Project				With Project			
	AM		PM		AM		PM	
	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS
Magnolia Street at Atlanta Avenue	.60	A	.51	A	.61	B	.51	A
Bushard Street at Atlanta Avenue	.52	A	.40	A	.53	A	.42	A
Brookhurst Street at Atlanta	.49	A	.53	A	.49	A	.53	A
Newland Street at Hamilton Avenue	.45	A	.59	A	.45	A	.62	B
Magnolia Street at Hamilton Avenue	.52	A	.68	B	.54	A	.68	B
Bushard Street at Hamilton Avenue	.41	A	.42	A	.42	A	.43	A
Brookhurst Street at Hamilton Avenue	.75	C	.78	C	.75	C	.78	C
Magnolia Street at Banning Avenue	.21	A	.23	A	.20	A	.23	A
Bushard Street at Banning Avenue	.24	A	.20	A	.24	A	.20	A
Brookhurst Street at Banning Avenue	.24	A	.23	A	.24	A	.23	A
Goldenwest Street at Orange Avenue	.35	A	.36	A	.35	A	.35	A
Seapoint Avenue at PCH	.76	C	.76	C	.77	C	.76	C
Beach Boulevard at PCH	.64	B	.75	C	.65	B	.75	C
Newland Street at PCH	.71	C	.69	B	.72	C	.69	B
Magnolia Street at PCH	.67	B	.70	B	.67	B	.71	C
Brookhurst Street at PCH	.69	B	.81	D	.70	B	.82	D
City of Westminster								
Beach Boulevard at Westminster	.85	D	.79	C	.82	D	.80	C
Beach Boulevard at Hazard Avenue	.73	C	.78	C	.72	C	.80	C
Beach Boulevard at Bolsa Avenue	.88	D	**.97**	**E**	.86	D	**.96**	**E**
Beach Boulevard at McFadden Avenue	.83	D	.85	D	.81	D	.87	D
Newland Street at Bolsa Avenue	.60	A	.69	B	.62	B	.68	B
Newland Street at McFadden Avenue	.67	B	.68	B	.66	B	.69	B
City of Fountain Valley								
Magnolia Street at Warner Avenue	.75	C	.82	D	.75	C	.82	D
Magnolia Street at Slater Avenue	.75	C	.75	C	.77	C	.78	C
Magnolia Street at Talbert Avenue	.83	D	.79	C	.83	D	.80	C
Magnolia Street at Ellis Avenue	.58	A	.70	B	.61	B	.70	B
Bushard Street at Talbert Avenue	.76	C	.80	C	.78	C	.84	D
Bushard Street at Ellis Avenue	.63	B	.57	A	.69	B	.57	A
Brookhurst Street at Talbert Avenue	.86	D	.86	D	.88	D	.85	D
Brookhurst Street at Ellis Avenue	.70	B	.76	C	.72	C	.78	C

SOURCE: Austin-Foust Associates Inc., City of Huntington Beach Boulevard and Edinger Avenue Corridor Specific Plan Traffic Study. August 2009, Table 4-1

Bold font denoted peak hour deficiency.

Gray shading denotes project impact.

Table 4.13-9 2016 Project ICU Contribution (No Project versus Project)		
Location	*AM/PM*	*Project ICU*
Beach Boulevard at Edinger Avenue	PM	0.3%
Beach Boulevard at Heil Avenue	PM	**1.9%**
Beach Boulevard at Warner Avenue	PM	**3.3%**
Beach Boulevard at Garfield Avenue	PM	**5.4%**
Brookhurst Street at Adams Avenue	AM	**1.2%**

SOURCE: Austin-Foust Associates Inc. City of Huntington Beach Boulevard and Edinger Avenue Corridor Specific Plan Traffic Study. August 2009. Table 4-2.

Bold font denotes locations with a significant project ICU contribution.

General Plan Comparison

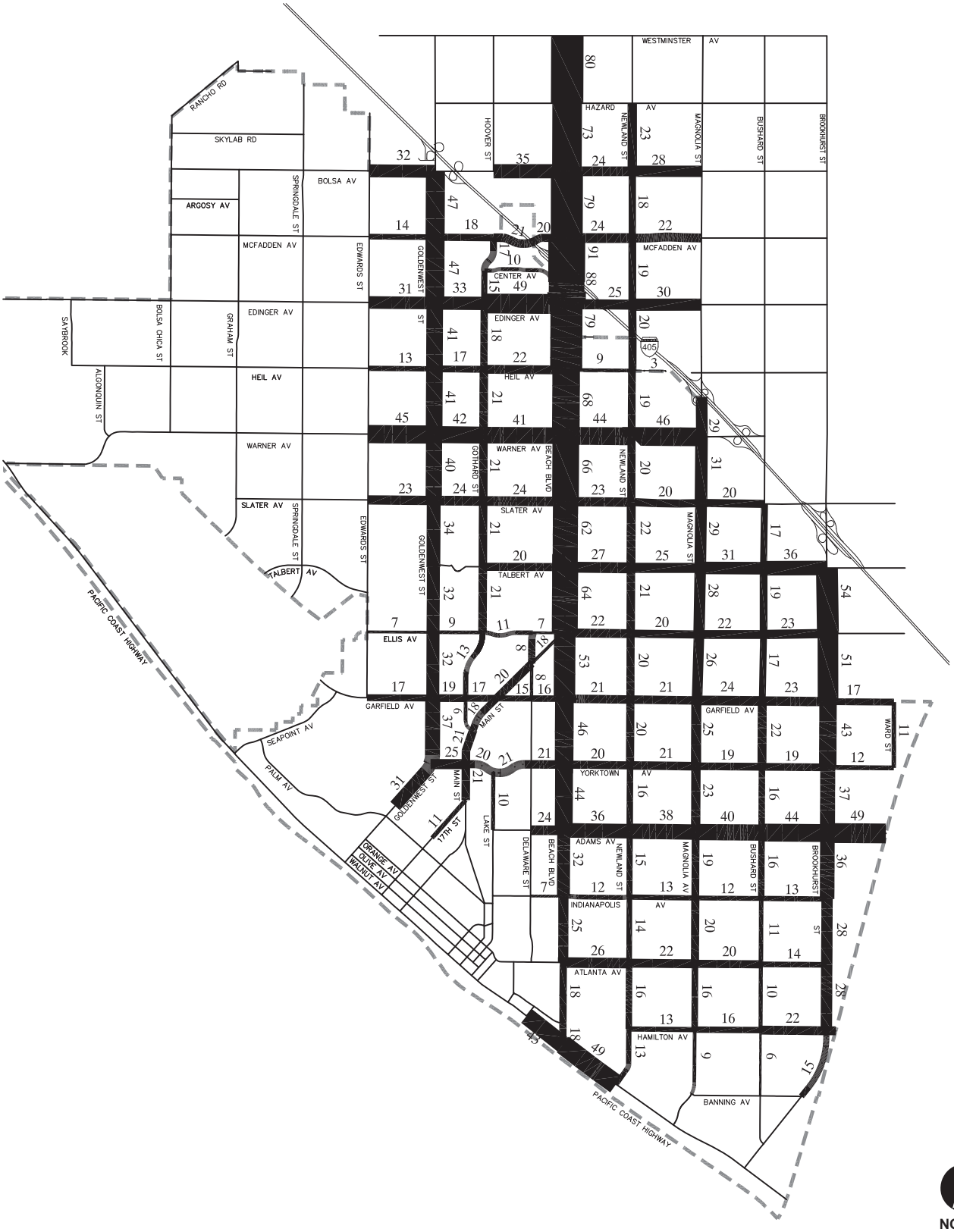
The 2030 ADT volumes for the current General Plan can be seen in Figure 4.13-6 (2030 General Plan with Committed Network). These form the baseline against which the proposed project is compared. The corresponding volumes for the Specific Plan can be seen in Figure 4.13-7 (2030 Beach/Edinger Specific Plan with Committed Network). Figure 4.13-8 (2030 Difference ADT Volumes ['000s] Specific Plan Minus General Plan) shows the ADT differences. As can be seen, the Specific Plan generally results in lower volumes throughout the study area due to the lower trip generation for the Specific Plan and some redistribution of the trips to and from the two corridors.

A summary of the corresponding 2030 ICU values can be found in Table 4.13-10 (2030 Intersection Level of Service Summary). The Specific Plan increases the ICU value by .01 or more at three deficient locations in Huntington Beach and two deficient locations in the City of Westminster. These are discussed in the next section on cumulative impacts.

Cumulative Project Impacts

This section of the long-range analysis equates the project contribution to future deficiencies. It differs from the results given in the previous section by considering the ICU increment for future land uses versus existing land uses (i.e., it considers actual future development in the Specific Plan area rather than simply comparing the General Plan to the Specific Plan land uses). For 2030 under the Specific Plan (and the General Plan), 12 intersections are deficient. For these twelve locations, a determination was made as to whether the project contribution to the ICU amounted to one percent or more. This was carried out by summing the project ICU for each critical movement in the ICU calculation to three decimal places, and the results are summarized in Table 4.13-11 (2030 Project ICU Contribution to Cumulative Deficiencies).

Hence, the Specific Plan has a significant project ICU contribution at seven of the deficient intersections in the long-range time frame. Three of the intersections that do not have a significant ICU contribution are Caltrans intersections and are discussed in the next section.

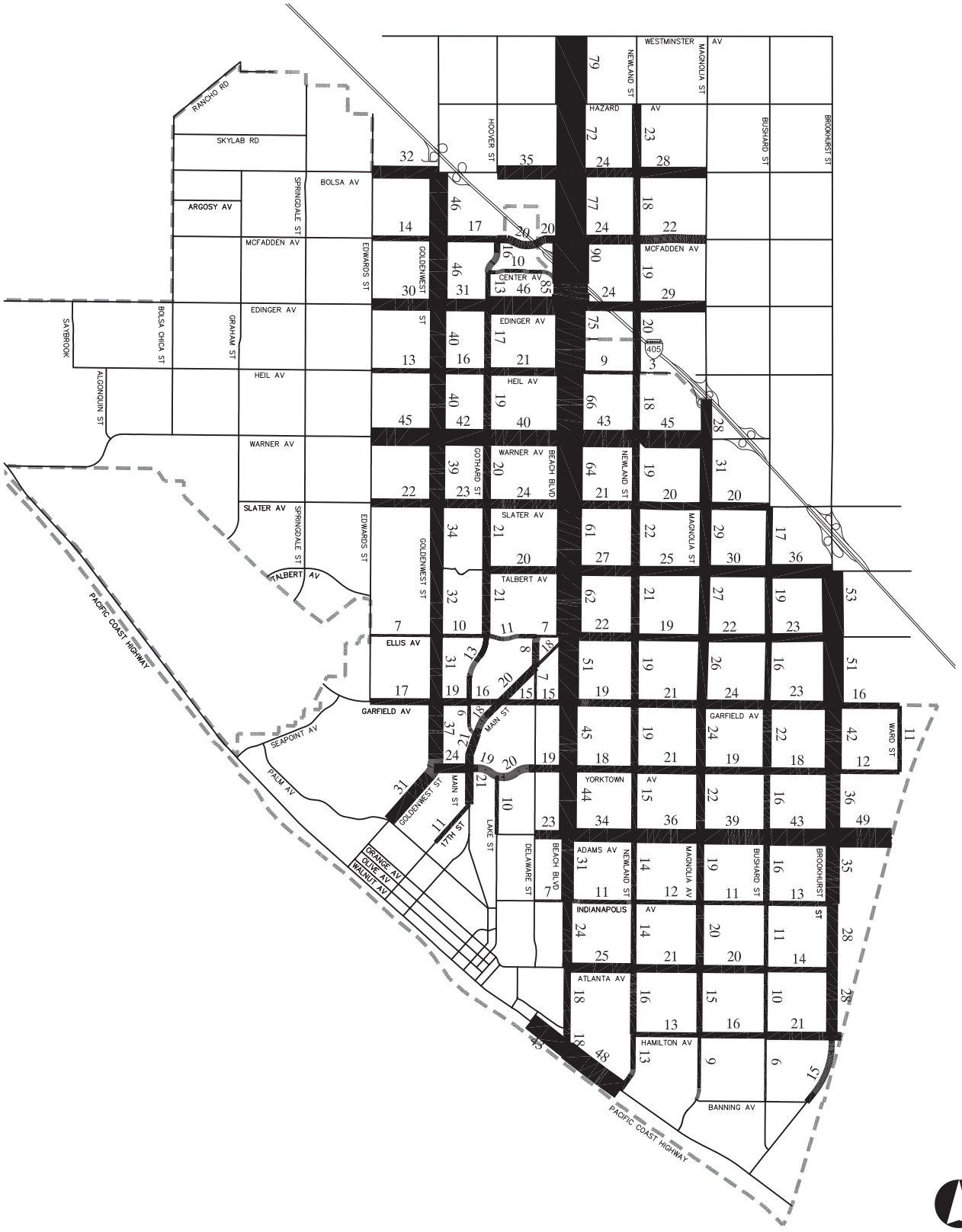


NORTH
NOT TO SCALE

***Source*:** Austin-Foust Associates, Inc., 2009.

FIGURE **4.13-6**

2030 General Plan with Committed Network

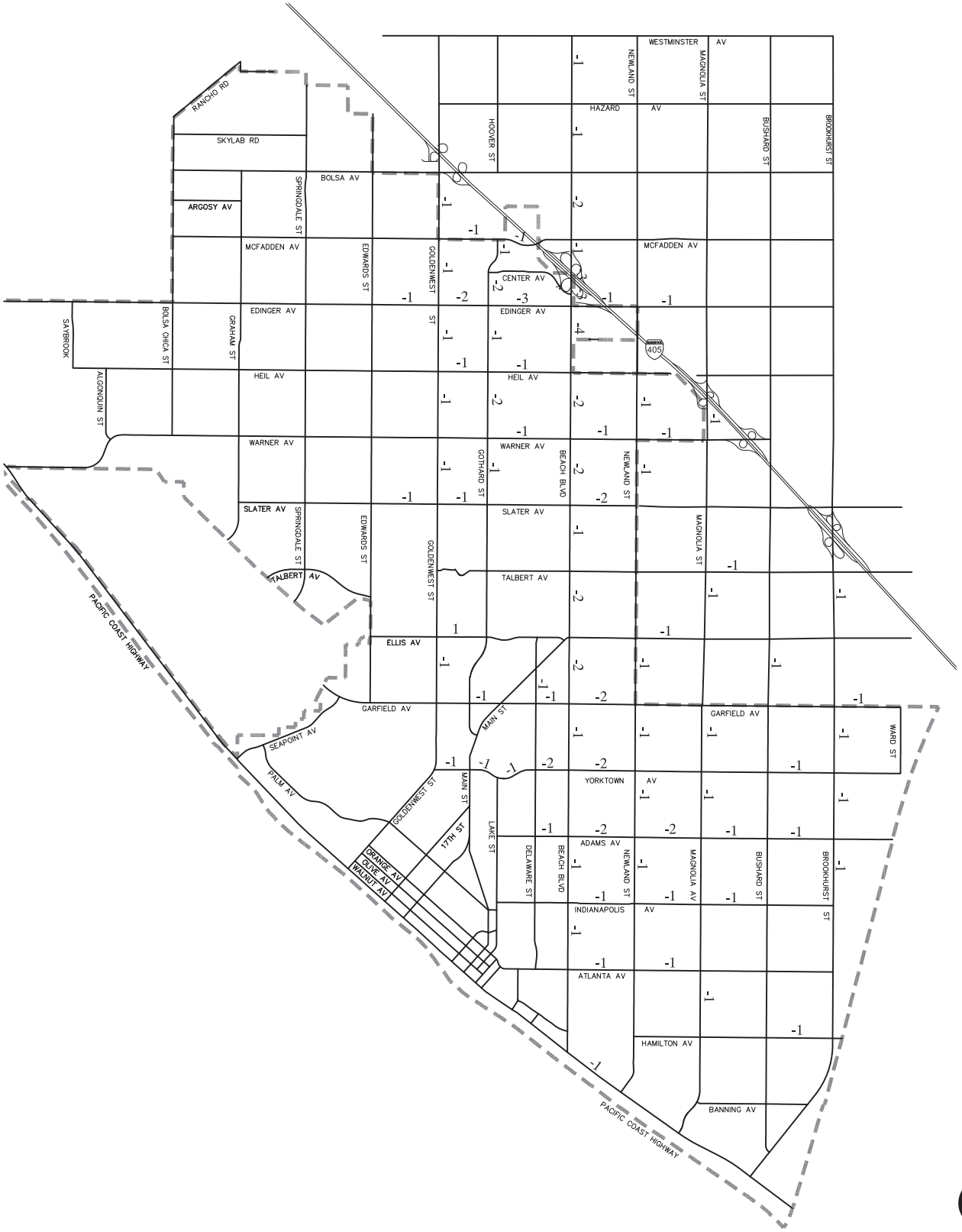


NORTH
NOT TO SCALE

***Source*:** Austin-Foust Associates, Inc., 2009.

FIGURE **4.13-7**

2030 Beach/Edinger Specific Plan with Committed Network



NORTH
NOT TO SCALE

***Source*:** Austin-Foust Associates, Inc., 2009.

FIGURE **4.13-8**

2030 Difference ADT Volumes ('000s) Specific Plan Minus General Plan

Table 4.13-10 2030 Intersection Level of Service Summary

Intersection	General Plan AM ICU	General Plan AM LOS	General Plan PM ICU	General Plan PM LOS	With Project AM ICU	With Project AM LOS	With Project PM ICU	With Project PM LOS
City of Huntington Beach								
Springdale Street at Bolsa Avenue	.74	C	.81	D	.76	C	.81	D
Edwards Street at Bolsa Avenue	.66	B	.78	C	.64	B	.75	C
Goldenwest Street at Bolsa Avenue	.90	D	**1.04**	**F**	**.91**	**E**	**1.04**	**F**
Springdale Street at McFadden Avenue	.74	C	.86	D	.74	C	.85	D
Edwards Street at McFadden Avenue	.68	B	.65	B	.72	C	.63	B
Goldenwest Street at McFadden Avenue	.76	C	.79	C	.72	C	.80	C
Gothard Street at McFadden Avenue	.69	B	.68	B	.65	B	.66	B
Gothard Street at Center Avenue	.38	A	.57	A	.37	A	.58	A
I-405 SB Ramps at Center Avenue	.52	A	.87	D	.53	A	.84	D
Beach Boulevard at Center Avenue	.77	C	.76	C	.73	C	.75	C
Springdale Street at Edinger Avenue	.75	C	.61	B	.76	C	.60	A
Edwards Street at Edinger Avenue	.69	B	.64	B	.71	C	.64	B
Goldenwest Street at Edinger Avenue	.67	B	.73	C	.65	B	.71	C
Gothard Street at Edinger Avenue	.59	A	.68	B	.57	A	.65	B
Beach Boulevard at Edinger Avenue	.88	D	**1.01**	**F**	**.91**	**E**	**.98**	**E**
Newland Street at Edinger Avenue	.87	D	.84	D	.86	D	.81	D
Edwards Street at Heil Avenue	.67	B	.59	A	.68	B	.57	A
Goldenwest Street at Heil Avenue	.64	B	.64	B	.63	B	.62	B
Gothard Street at Heil Avenue	.72	C	.81	D	.73	C	.79	C
Beach Boulevard at Heil Avenue	.88	D	**.96**	**E**	.87	D	**.96**	**E**
Newland Street at Heil Avenue	.63	B	.62	B	.60	A	.61	B
Goldenwest Street at Warner Avenue	.73	C	.74	C	.73	C	.74	C
Gothard Street at Warner Avenue	.66	B	.82	D	.66	B	.81	D
Beach Boulevard at Warner Avenue	.78	C	**.96**	**E**	.78	C	**.95**	**E**
Newland Street at Warner Avenue	**.91**	**E**	**.94**	**E**	.90	D	**.91**	**E**
Goldenwest Street at Slater Avenue	.85	D	**1.00**	**E**	.85	D	**.98**	**E**
Gothard Street at Slater Avenue	.86	D	.70	B	.86	D	.69	B
Beach Boulevard at Slater Avenue	.85	D	.89	D	.86	D	.90	D
Newland Street at Slater Avenue	.67	B	.70	B	.67	B	.70	B
Gothard Street at Talbert Avenue	.57	A	.88	D	.57	A	.87	D
Beach Boulevard at Talbert Avenue	.85	D	**1.02**	**F**	.85	D	**1.00**	**E**
Newland Street at Talbert Avenue	.68	B	.90	D	.68	B	.90	D
Goldenwest Street at Ellis Avenue	.49	A	.57	A	.48	A	.58	A
Gothard Street at Ellis Avenue	.54	A	.46	A	.54	A	.45	A
Delaware Street at Ellis Avenue	.39	A	.53	A	.40	A	.53	A
Beach Boulevard at Ellis Avenue	.65	B	.73	C	.64	B	.78	C

Table 4.13-10 2030 Intersection Level of Service Summary

Intersection	General Plan				With Project			
	AM		PM		AM		PM	
	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS
Newland Street at Ellis Avenue	.57	A	.62	B	.55	A	.61	B
Main Street at Ellis Avenue	.31	A	.43	A	.32	A	.45	A
Delaware Street at Main Street	.40	A	.49	A	.39	A	.49	A
Goldenwest Street at Garfield Avenue	.49	A	.59	A	.50	A	.57	A
Gothard Street at Garfield Avenue	.44	A	.46	A	.43	A	.46	A
Main Street at Garfield Avenue	.33	A	.43	A	.33	A	.44	A
Delaware Street at Garfield Avenue	.70	B	.70	B	.69	B	.69	B
Beach Boulevard at Garfield Avenue	.74	C	**.99**	**E**	.75	C	**.99**	**E**
Newland Street at Garfield Avenue	.57	A	.63	B	.55	A	.61	B
Magnolia Street at Garfield Avenue	.72	C	.80	C	.73	C	.79	C
Bushard Street at Garfield Avenue	.54	A	.73	C	.54	A	.73	C
Brookhurst Street at Garfield Avenue	.73	C	.88	D	.73	C	.87	D
Ward Street at Garfield Avenue	.85	D	.59	A	.86	D	.57	A
Goldenwest Street at Yorktown Avenue	.59	A	.79	C	.57	A	.77	C
Main Street at Yorktown Avenue	.62	B	.61	B	.63	B	.59	A
Lake Street at Yorktown Avenue	.48	A	.53	A	.47	A	.51	A
Delaware Street at Yorktown Avenue	.53	A	.46	A	.51	A	.46	A
Beach Boulevard at Yorktown Avenue	.69	B	**.93**	**E**	.63	B	**.91**	**E**
Newland Street at Yorktown Avenue	.75	C	.85	D	.70	B	.86	D
Magnolia Street at Yorktown Avenue	.64	B	.65	B	.65	B	.65	B
Bushard Street at Yorktown Avenue	.63	B	.65	B	.64	B	.64	B
Brookhurst Street at Yorktown Avenue	.58	A	.68	B	.57	A	.67	B
Beach Boulevard at Adams Avenue	.70	B	.87	D	.69	B	.85	D
Newland Street at Adams Avenue	.69	B	.74	C	.68	B	.73	C
Magnolia Street at Adams Avenue	.87	D	.83	D	.88	D	.81	D
Bushard Street at Adams Avenue	.78	C	.82	D	.77	C	.82	D
Brookhurst Street at Adams Avenue	**1.08**	**F**	**1.05**	**F**	**1.10**	**F**	**1.06**	**F**
Beach Boulevard at Indianapolis	.62	B	.59	A	.61	B	.57	A
Newland Street at Indianapolis	.55	A	.58	A	.55	A	.56	A
Magnolia Street at Indianapolis	.81	D	.48	A	.81	D	.48	A
Bushard Street at Indianapolis	.50	A	.44	A	.51	A	.43	A
Brookhurst at Indianapolis	.40	A	.52	A	.40	A	.53	A
Beach Boulevard at Atlanta Avenue	.59	A	.87	D	.60	A	.89	D
Newland Street at Atlanta Avenue	.56	A	.59	A	.57	A	.59	A
Magnolia Street at Atlanta Avenue	.64	B	.57	A	.64	B	.56	A
Bushard Street at Atlanta Avenue	.56	A	.44	A	.56	A	.46	A
Brookhurst Street at Atlanta	.53	A	.60	A	.52	A	.59	A
Newland Street at Hamilton Avenue	.48	A	.65	B	.48	A	.65	B

Table 4.13-10 2030 Intersection Level of Service Summary

Intersection	General Plan				With Project			
	AM		PM		AM		PM	
	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS
Magnolia Street at Hamilton Avenue	.61	B	.74	C	.60	A	.74	C
Bushard Street at Hamilton Avenue	.45	A	.44	A	.44	A	.43	A
Brookhurst Street at Hamilton Avenue	.75	C	.81	D	.75	C	.85	D
Magnolia Street at Banning Avenue	.21	A	.21	A	.20	A	.22	A
Bushard Street at Banning Avenue	.24	A	.17	A	.24	A	.18	A
Brookhurst Street at Banning Avenue	.24	A	.23	A	.24	A	.22	A
Goldenwest Street at Orange Avenue	.39	A	.39	A	.38	A	.39	A
Seapoint Avenue at PCH	.82	D	.84	D	.83	D	.82	D
Beach Boulevard at PCH	.66	B	.77	C	.66	B	.78	C
Newland Street at PCH	.73	C	.74	C	.73	C	.72	C
Magnolia Street at PCH	.68	B	.73	C	.68	B	.73	C
Brookhurst Street at PCH	.71	C	.84	D	.71	C	.84	D
City of Westminster								
Beach Boulevard at Westminster	.90	D	.85	D	.87	D	.83	D
Beach Boulevard at Hazard Avenue	.80	C	.82	D	.79	C	.83	D
Beach Boulevard at Bolsa Avenue	.92	E	**1.07**	**F**	.90	D	**1.09**	**F**
Beach Boulevard at McFadden Avenue	.86	D	**.91**	**E**	.86	D	**.92**	**E**
Newland Street at Bolsa Avenue	.66	B	.75	C	.66	B	.74	C
Newland Street at McFadden Avenue	.71	C	.72	C	.70	B	.72	C
City of Fountain Valley								
Magnolia Street at Warner Avenue	.78	C	.85	D	.77	C	.85	D
Magnolia Street at Slater Avenue	.78	C	.79	C	.79	C	.81	D
Magnolia Street at Talbert Avenue	.83	D	.71	C	.84	D	.71	C
Magnolia Street at Ellis Avenue	.65	B	.74	C	.66	B	.74	C
Bushard Street at Talbert Avenue	.79	C	.84	D	.81	D	.84	D
Bushard Street at Ellis Avenue	.70	B	.61	B	.72	C	.59	A
Brookhurst Street at Talbert Avenue	.86	D	.90	D	.88	D	.88	D
Brookhurst Street at Ellis Avenue	.76	C	.81	D	.77	C	.81	D

SOURCE: Austin-Foust Associates Inc., *City of Huntington Beach Boulevard and Edinger Avenue Corridor Specific Plan Traffic Study*, August 2009, Table 4-3

Bold font denoted peak hour deficiency.

Table 4.13-11 2030 Project ICU Contribution to Cumulative Deficiencies		
Location	*AM/PM*	*Project ICU*
Goldenwest St at Bolsa Avenue	AM	0.8%
Beach Boulevard at Edinger Avenue	AM	**4.6%**
Beach Boulevard at Heil Avenue	PM	**1.9%**
Beach Boulevard at Warner Avenue	PM	**3.3%**
Newland Street at Warner Avenue	PM	**3.1%**
Goldenwest Street at Slater Avenue	PM	0.5%
Beach Boulevard at Talbert Avenue	PM	-0.1%
Beach Boulevard at Garfield Avenue	PM	**5.4%**
Beach Boulevard at Yorktown Avenue	PM	0.8%
Brookhurst Street at Adams Avenue	AM	**2.3%**
Beach Boulevard at Bolsa Avenue	PM	**1.5%**
Beach Boulevard at McFadden Avenue	PM	0.4%

SOURCE: Austin-Foust Associates Inc. City of Huntington Beach Boulevard and Edinger Avenue Corridor Specific Plan Traffic Study. August 2009. Table 4-4.

Bold font denotes locations with a significant project ICU contribution.

Caltrans Intersections

As noted earlier, both the ICU and HCM methodologies are applied to Caltrans intersections. This recognizes that while the intersections are under Caltrans jurisdiction, they are shared by the City and are part of the overall circulation system in the City. The HCM analysis for 2016 and 2030 for the Caltrans intersections was carried out using Synchro 6.0 software, and the intersections were modeled as a network. The 2016 results are summarized in Table 4.13-12 (2016 Level of Service Summary for Caltrans Intersections) and the 2030 results are summarized in Table 4.13-13 (2030 Level of Service Summary for Caltrans Intersections). In general, the results give similar LOS values compared to those derived using ICU values, although some of the deficiencies identified using the ICU methodology are not deficient using the Caltrans procedures. For a Caltrans intersection that is deficient, any increase in delay due to the project is considered a project impact. The 2016 results show five locations with project impacts, two of which were identified in the ICU analysis. For 2030, six locations have project impacts and four of these were also identified in the ICU analysis. The same five intersections identified under the 2016 analysis are also identified in the 2030 analysis, along with one additional intersection.

Freeway Ramp Analysis

A summary of the 2016 and 2030 peak hour volumes and V/C ratios for freeway ramps that would be affected by the Specific Plan can be found in Table 4.13-14 (Future Freeway Ramp V/C Summary). Included in the table are the project contributions to the ramp V/C ratios. As can be seen, the project has a significant impact to the northbound I-405 loop ramp from Beach Boulevard in 2016 (i.e., the project has a significant V/C contribution to a future deficiency). The same situation occurs in the long-range (Year 2030), although the V/C would be of similar magnitude under the current General Plan.

Table 4.13-12 2016 Level of Service Summary for Caltrans Intersections

Location	2016 Without Project				2016 With Project			
	AM		PM		AM		PM	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
I-405 SB & Center Avenue	31	C	39	D	32	C	38	D
Beach Boulevard at Center Avenue	8	A	17	B	9	A	17	B
Beach Boulevard at Edinger Avenue	33	C	**64**	**E**	35	D	**64**	**E**
Beach Boulevard at Heil Avenue	28	C	26	C	27	C	29	C
Beach Boulevard at Warner Avenue	38	D	**63**	**E**	39	D	**64**	**E**
Beach Boulevard at Slater Avenue	46	D	52	D	49	D	55	D
Beach Boulevard at Talbert Avenue	43	D	**70**	**E**	45	D	**70**	**E**
Beach Boulevard at Ellis Avenue	40	D	40	D	41	D	43	D
Beach Boulevard at Garfield Avenue	40	D	**56**	**E**	40	D	**62**	**E**
Beach Boulevard at Yorktown Avenue	37	D	50	D	37	D	50	D
Beach Boulevard at Adams Avenue	39	D	48	D	39	D	48	D
Beach Boulevard at Indianapolis Avenue	29	C	24	C	30	C	24	C
Beach Boulevard at Atlanta Avenue	38	D	47	D	38	D	47	D
Beach Boulevard at PCH	29	C	26	C	30	C	27	C
Newland Street at PCH	25	C	17	B	25	C	17	B
Magnolia Street at PCH	25	C	20	C	25	C	21	C
Brookhurst Street at PCH	29	C	45	D	29	C	51	D
Beach Boulevard at Westminster Avenue	40	D	43	D	38	D	43	D
Beach Boulevard at Hazard Avenue	28	C	33	C	28	C	33	C
Beach Boulevard at Bolsa Avenue	50	D	**77**	**E**	50	D	**77**	**E**
Beach Boulevard at McFadden Avenue	44	D	52	D	43	D	54	D

SOURCE: Austin-Foust Associates Inc., *City of Huntington Beach Boulevard and Edinger Avenue Corridor Specific Plan Traffic Study*, August 2009, Table 4-5

Bold font denoted peak hour deficiency.

Gray shading denoted project impact.

Table 4.13-13 2030 Level of Service Summary for Caltrans Intersections

Location	2016 Without Project				2016 With Project			
	AM		PM		AM		PM	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
I-405 SB & Center Avenue	32	C	**57**	**E**	29	C	39	D
Beach Boulevard at Center Avenue	10	B	25	C	10	A	17	B
Beach Boulevard at Edinger Avenue	40	D	**92**	**F**	42	D	**73**	**E**
Beach Boulevard at Heil Avenue	36	D	**68**	**E**	31	C	43	D
Beach Boulevard at Warner Avenue	41	D	45	D	42	D	**63**	**E**
Beach Boulevard at Slater Avenue	49	D	**59**	**E**	49	D	55	D
Beach Boulevard at Talbert Avenue	50	D	**79**	**E**	49	D	**78**	**E**
Beach Boulevard at Ellis Avenue	43	D	41	D	43	D	42	D
Beach Boulevard at Garfield Avenue	41	D	**74**	**E**	42	D	**76**	**E**
Beach Boulevard at Yorktown Avenue	40	D	**57**	**E**	38	D	54	D
Beach Boulevard at Adams Avenue	40	D	53	D	40	D	52	D
Beach Boulevard at Indianapolis Avenue	32	C	27	C	31	C	26	C
Beach Boulevard at Atlanta Avenue	39	D	51	D	39	D	55	D
Beach Boulevard at PCH	30	C	25	C	28	C	27	C
Newland Street at PCH	26	C	17	B	26	C	17	B
Magnolia Street at PCH	25	C	22	C	25	C	23	C
Brookhurst Street at PCH	28	C	**58**	**E**	28	C	55	D
Beach Boulevard at Westminster Avenue	48	D	47	D	44	D	47	D
Beach Boulevard at Hazard Avenue	32	C	34	C	32	C	35	D
Beach Boulevard at Bolsa Avenue	**57**	**E**	**107**	**F**	**56**	**E**	**106**	**F**
Beach Boulevard at McFadden Avenue	48	D	**67**	**E**	46	D	**63**	**E**

SOURCE: Austin-Foust Associates Inc., *City of Huntington Beach Boulevard and Edinger Avenue Corridor Specific Plan Traffic Study*, August 2009, Table 4-6

Gray shading denoted project impact.

Table 4.13-14 Future Freeway Ramp V/C Summary

Interchange	Ramp	Lanes	Peak Hour Capacity	AM Peak Hour Volume	AM Peak Hour Total V/C	AM Peak Hour LOS	Project Volume	Project V/C*	PM Peak Hour Volume	PM Peak Hour Total V/C	PM Peak Hour LOS	Project Volume	Project V/C*
Year 2016													
I-405 at Goldenwest Street	NB Loop On	1	1,500	800	.53	A	20	.01	910	.61	B	0	.00
	SB Off	1	1,500	380	.25	A	0	.00	600	.40	A	0	.00
	SB On	1	900	350	.39	A	0	.00	460	.51	A	20	.02
I-405 at Bolsa Avenue	NB Loop Off	1	1,500	1,200	.80	C	0	.00	990	.66	B	40	.03
	SB Loop Off	1	1,500	170	.11	A	0	.00	140	.09	A	0	.00
	SB On	1	1,500	350	.23	A	10	.01	850	.57	A	10	.01
I-405 at Beach Boulevard	NB Loop On	1	900	1,450	**1.61**	F	180	.20	1,510	**1.68**	F	0	.00
	NB Loop Off	1	1,500	770	.51	A	0	.00	960	.64	B	0	.00
I-405 at Center Avenue	SB On	1	1,800	520	.29	A	30	.02	1,100	.61	B	0	.00
	SB Off	1	1,500	960	.64	B	0	.00	1,180	.79	C	60	.04
I-405 at Edinger Avenue	SB On	1	1,080	660	.61	B	40	.04	640	.59	A	0	.00
I-405 at Magnolia Street	NB Off	1	1,500	370	.25	A	0	.00	630	.42	A	0	.00
	NB Loop On	1	900	610	.68	B	0	.00	390	.43	A	0	.00
	SB Off	1	1,500	230	.15	A	0	.00	1,050	.70	B	20	.01
I-405 at Warner Avenue	NB Loop Off	1	1,500	640	.43	A	0	.00	800	.53	A	10	.01
	SB On	1	1,800	840	.47	A	20	.01	350	.19	A	10	.01
Year 2030													
I-405 at Goldenwest Street	NB Loop On	1	1,500	860	.57	A	20	.01	950	.63	B	(10)	-.01
	SB Off	1	1,500	390	.26	A	(20)	-.01	640	.43	A	0	.00
	SB On	1	900	350	.39	A	(10)	-.01	470	.52	A	20	.02
I-405 at Bolsa Avenue	NB Loop Off	1	1,500	1,270	.85	D	(20)	-.01	1,100	.73	C	40	.03
	SB Loop Off	1	1,500	180	.12	A	0	.00	140	.09	A	(10)	-.01
	SB On	1	1,500	380	.25	A	10	.01	890	.59	A	10	.01

Table 4.13-14 Future Freeway Ramp V/C Summary

Interchange	Ramp	Lanes	Peak Hour Capacity	AM Peak Hour Volume	AM Peak Hour Total V/C	AM Peak Hour LOS	Project Volume	Project V/C*	PM Peak Hour Volume	PM Peak Hour Total V/C	PM Peak Hour LOS	Project Volume	Project V/C*
I-405 at Beach Boulevard	NB Loop On	1	900	1,470	**1.63**	F	180	.20	1,520	**1.69**	F	(40)	-.04
	NB Loop Off	1	1,500	820	.55	A	0	.00	1,010	.67	B	0	.00
I-405 at Center Avenue	SB On	1	1,800	610	.34	A	30	.02	1,120	.62	B	(20)	-.01
	SB Off	1	1,500	970	.65	B	(20)	-.01	1,270	.85	D	60	.04
I-405 at Edinger Avenue	SB On	1	1,080	700	.65	B	40	.04	680	.63	B	(20)	-.02
I-405 at Magnolia Street	NB Off	1	1,500	370	.25	A	(20)	-.01	670	.45	A	(10)	-.01
	NB Loop On	1	900	610	.68	B	(20)	-.02	410	.46	A	0	.00
	SB Off	1	1,500	240	.16	A	0	.00	1,070	.71	C	20	.01
I-405 at Warner Avenue	NB Loop Off	1	1,500	670	.45	A	(10)	-.01	850	.57	A	10	.01
	SB On	1	1,800	880	.49	A	20	.01	350	.19	A	10	.01

SOURCE: Austin-Foust Associates Inc., *City of Huntington Beach Boulevard and Edinger Avenue Corridor Specific Plan Traffic Study*, August 2009, Table 4-7

Freeway Mainline Analysis

Peak hour project traffic on the adjacent I-405 freeway for 2030 is listed in Table 4.13-15 (2030 I-405 Mainline Freeway Analysis).[48] As can be seen here, the project contributes trips on some segments and reduces trips on others, the changes reflecting the trip characteristics of the project (i.e., changes in peak hour directionality where residential uses replace commercial uses). Information provided in the recent Project Study Report (PSR) for the I-405 Freeway shows existing and future deficiencies on this facility. For the freeway information presented here, there are no significance criteria other than any increase in traffic on a deficient facility represents a project impact. Hence, it can only be noted that the project contributes traffic to a number of 2030 deficiencies on the State highway system.

Table 4.13-15 2030 I-405 Mainline Freeway Analysis

		AM Peak Hour				PM Peak Hour			
Location	*Direction*	*General Plan*	*Specific Plan*	*Project**	*Percentage (%)*	*General Plan*	*Specific Plan*	*Project*	*Percentage (%)*
North of Goldenwest Avenue	Northbound	11,628	11,797	245	2%	12,710	12,556	-60	0%
	Southbound	12,105	11,856	-145	-1%	11,893	12,038	118	1%
North of Beach Boulevard	Northbound	12,035	12,151	92	1%	12,475	12,374	-24	0%
	Southbound	11,887	11,676	-110	-1%	12,209	12,311	154	1%
South of Beach Boulevard	Northbound	11,918	11,876	-24	0%	12,692	12,669	11	0%
	Southbound	12,611	12,712	76	1%	12,591	12,589	19	0%
South of Magnolia Avenue	Northbound	11,608	11,484	-68	-1%	13,179	13,690	44	0%
	Southbound	13,026	13,911	81	1%	12,292	12,471	-9	0%

SOURCE: Austin-Foust Associates Inc., *City of Huntington Beach Boulevard and Edinger Avenue Corridor Specific Plan Traffic* Study, August 2009, Table 4-8

Master Plan of Arterial Highways

A brief mention of the County MPAH was included in Section 4.13.1 under the discussion on the committed network assumptions used in this analysis. The MPAH defines the long-range highway system for the County. While most of the City's arterial street system is built out according to the MPAH classifications, some gaps remain. Two examples in the study area are the northward extension of Gothard Street to Hoover Street (in Westminster) and the westbound extension of Hamilton Avenue to Beach Boulevard. Use of the committed network in the analysis has ensured that the project impacts can be mitigated without these roadway extensions. Over time, improvements will be made to the City's roadway system in accordance with the MPAH or in some cases amendments will be made to the MPAH.

[48] Mainline refers to the general-purpose (mixed-flow) lanes, carpool lanes, and auxiliary lanes, where provided.

Street Changes and Additions

The Specific Plan contains examples of street sections within the Specific Plan area. They are intended to provide an aesthetic streetscape environment consistent with the overall objectives of the plan. Two features that will have some potential affect on traffic operations are the recommendations for additional local streets and the creation of a boulevard section on Edinger Avenue, as follows:

- **New Streets**—The addition of new local streets to act as buffers between commercial and residential areas offers several advantages with respect to circulation. Foremost is the ability to create a secondary circulation system, potentially reducing some traffic on the main arterials. In concept, it is similar to creating openings between adjacent parking lots along a commercial frontage. Such openings allow vehicles to make more than one stop without having to access the adjacent arterial street, and also provide opportunities for driveway consolidation. Formalizing this with an actual street element as recommended in the Specific Plan expands on this concept, providing operational and accessibility enhancements.
- **Edinger Avenue boulevard treatment**—The creation of a boulevard along Edinger Avenue will provide a unique streetscape with both vehicular and pedestrian amenities. The parking along the frontage road will provide a buffer for pedestrians, and actual volumes on the frontage will be low so that ingress and egress issues will seldom be an issue. It is recommended that the frontage road for this boulevard treatment start after and terminate before the signalized intersections. This will avoid creating complex intersections with multiple conflict points and ensure that the frontage roads do not negatively impact traffic operations at those intersections.

Five Points Traffic Operations

The HCM analysis for the Beach Boulevard/Ellis Avenue intersection (referred to here as the "Five Points Area") shows LOS D in 2030 with the project. The ICU for this intersection and for the intersection to the immediate southwest (Ellis Avenue and Main Street) also shows adequate LOS. However, because of the close spacing between these two intersections, blockages can occur, resulting in an operational deficiency. The movements that are affected are primarily eastbound vehicles on Main Street, exiting to northbound Beach Boulevard or eastbound Ellis Avenue. The Synchro analysis used to derive the HCM delay at Beach Boulevard shows that while overall intersection performance is LOS D, it is LOS F for these movements. The HCM analysis for the existing conditions also shows LOS D, with the same operational deficiency affecting the eastbound vehicles on Main Street.

Mitigating this deficiency will require changes to the Ellis Avenue intersection in the form of restricting movements or eliminating the intersection. In either case, there would be no signalized intersection at this location. Such actions to improve traffic operations need to be considered in a broader context, addressing access needs for the shopping center and the adjacent residential areas to the north. Opportunities for redevelopment in conjunction with enhancing pedestrian movement (e.g., by eliminating this short section of Ellis Avenue) could potentially improve traffic conditions while achieving other goals of the Specific Plan. For this reason, no specific recommendation is made in this EIR, however, the traffic operations problem is evident, and will be addressed when future land use changes are being considered for this area.

Thresholds of Significance

The following thresholds of significance are based on Appendix G of the 2009 CEQA Guidelines. For the purposes of this EIR, implementation of the proposed project may result in a potentially significant impact if the proposed project would cause either of the following results:

- Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (e.g., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)
- Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways
- Result in a change in air traffic patterns, including either an increase in traffic levels or a change in locations that results in substantial safety risks
- Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses
- Result in inadequate emergency access
- Result in inadequate parking capacity
- Conflict with adopted policies supporting alternative transportation (e.g., bus turnouts, bicycle racks)

As stated previously and for the purposes of this analysis, an acceptable level of service (LOS) is LOS D as adopted by the cities of Huntington Beach, Westminster, and Fountain Valley. Therefore, any intersection operating at LOS E or F is considered deficient/unsatisfactory. In addition, an intersection is also considered impacted if the LOS is E or F and the ICU value changes by one percent or more. For a Caltrans intersection, a significant impact occurs when the intersection is at LOS "E" or "F" and the project adds traffic to the intersection.

Effects Not Found to Be Significant

Threshold	Would the proposed project result in a change in air traffic patterns, including either an increase in traffic levels or a change in locations that results in substantial safety risks?

The project area is not located within 2 miles of a public or private airstrip and does not propose any structures of substantial height to interfere with existing airspace or flight patterns. ***No impact*** would occur, and no further analysis of this issue is required in the EIR.

Impacts and Mitigation

Threshold	Would the proposed project cause an increase in traffic, which is substantial in relation to the existing traffic load and capacity of the street system (e.g., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?

As can be seen from the trip generation results in Table 4.13-7, the Specific Plan generates lower AM peak hour trips (17,371 trips versus 18,435 trips) and significantly less PM peak hour trips (23,227 trips versus 26,533 trips) and daily trips (294,282 trips versus 353,965 trips) than the General Plan land uses for the site. The increase of 6,400 residential units under the Specific Plan does cause an increase in the AM peak hour outbound trips, although as noted previously, the overall AM peak hour total (17,371 trips) is still lower than the current General Plan total (18,435 trips). These data apply to both the 2016 and 2030 conditions, as analyzed below under Impact 4.13-1 and Impact 4.13-2.

Impact 4.13-1 **Under Year 2016 conditions, operation of the proposed project would cause an increase in traffic, which is substantial in relation to the existing traffic load and capacity of the street system. Even with implementation of mitigation measures, this impact is considered *significant and unavoidable*.**

The 2016 analysis presented below includes an evaluation of the increase in traffic as it relates to intersection operation as well as freeway ramps.

Intersection Analysis

The short-range (Year 2016) analysis compares no development or redevelopment of the project site (i.e., existing uses) to buildout of the Specific Plan. While it recognizes that actual buildout may not occur until after 2016, the assumption of full buildout by 2016 has been assumed in the traffic analysis thereby giving the equivalent of an existing plus project evaluation for CEQA purposes. As shown in Table 4.13-9 (2016 Project ICU Contribution [No Project versus Project]), four intersections (Beach Boulevard at Heil Avenue, Beach Boulevard at Warner Avenue, Beach Boulevard at Garfield Avenue, and Brookhurst Street at Adams Avenue) show a project impact using the ICU performance criteria. Two of these were also identified as showing a project impact using the HCM criteria. Three additional project impacted locations were identified using the HCM criteria. Table 4.13-16 (2016 Summary of Project Impacts) summarizes the complete list of project impacts for year 2016.

Also shown in Table 4.13-16 is the type of deficiency (i.e., caused by the project or a cumulative deficiency). The seven intersections (shown in Table 4.13-16) were determined to show a project impact using the ICU and/or HCM criteria.

Table 4.13-16 2016 Summary of Project Impacts

Location	*Peak Hour*	*ICU Impact*	*HCM Impact*	*Project/Cumulative**
Beach Boulevard at Edinger Avenue	PM	No	Yes	Cumulative
Beach Boulevard at Heil Avenue	PM	Yes	No	Project
Beach Boulevard at Warner Avenue	PM	Yes	Yes	Cumulative
Beach Boulevard at Talbert Avenue	PM	No	Yes	Cumulative
Beach Boulevard at Garfield Avenue	PM	Yes	Yes	Project
Brookhurst Street at Adams Avenue	AM	Yes	N/A	Cumulative
Beach Boulevard at Bolsa Avenue	PM	No	Yes	Cumulative

SOURCE: Austin-Foust Associates Inc., *City of Huntington Beach Boulevard and Edinger Avenue Corridor Specific Plan Traffic Study*, August 2009, Table 4-9.

N/A = not applicable

* Project versus Cumulative impact (i.e., project causes the impact versus project has a significant contribution to a cumulative impact).

For the Caltrans intersection of Beach Boulevard at Heil Avenue (which was determined to be deficient under the ICU criteria only), a discretionary improvement (as opposed to a mitigation measure) has been identified on the part of the City to meet City performance criteria on Caltrans facilities. Both the ICU and HCM methodologies are applied to Caltrans intersections. This recognizes that while the intersections are under Caltrans jurisdiction, they are shared by the City and are part of the overall circulation system in the City. The Beach Boulevard at Heil Avenue intersection operates at acceptable levels of service using the Caltrans HCM methodology. However, the intersection does not meet acceptable level of service standards using the City's more stringent ICU criteria. In order to have the intersection operate at an acceptable level of service in accordance with City criteria, the City would be required to obtain Caltrans approval for implementation of the improvement. However, the City is not required to implement the improvement since the intersection is a Caltrans intersection and meets Caltrans criteria (using the Caltrans HCM methodology) for determining acceptable levels of service. Therefore, the improvement is considered a discretionary improvement rather than a mitigation measure. The discretionary improvement includes adding a second northbound left turn lane at this intersection.

Potential improvements to reduce project impacts at the other six impacted intersections in 2016 are summarized in the following mitigation measures:

MM4.13-1 *For future projects that occur within the Specific Plan area, the project applicant(s) shall make a fair share contribution for the addition of a separate westbound right turn lane to the intersection of Beach Boulevard at Warner Avenue. Implementation of this improvement would require Caltrans approval.*

MM4.13-2 *For future projects that occur within the Specific Plan area, the project applicant(s) shall make a fair share contribution for the addition of dual northbound and southbound left turn lanes to the intersection of Beach Boulevard at Garfield Avenue. Implementation of this improvement would require Caltrans approval.*

MM4.13-3 *For future projects that occur within the Specific Plan area, the project applicant(s) shall make a fair share contribution for the addition of a fourth northbound through lane to the intersection of Brookhurst Street at Adams Avenue.*

MM4.13-4 *For future projects that occur within the Specific Plan area, the project applicant(s) shall make a fair share contribution for the addition of a separate northbound right turn lane to the intersection of Brookhurst Street at Adams Avenue.*

MM4.13-5 *For future projects that occur within the Specific Plan area, the project applicant(s) shall make a fair share contribution for the addition of a fourth southbound through lane to the intersection of Brookhurst Street at Adams Avenue.*

MM4.13-6 *For future projects that occur within the Specific Plan area, the project applicant(s) shall make a fair share contribution for the addition of a fourth eastbound through lane to the intersection of Brookhurst Street at Adams Avenue.*

MM4.13-7 *For future projects that occur within the Specific Plan area, the project applicant(s) shall make a fair share contribution for the addition of a fourth westbound through lane to the intersection of Brookhurst Street at Adams Avenue.*

MM4.13-8 *For future projects that occur within the Specific Plan area, the project applicant(s) shall make a fair share contribution to allow a right turn overlap for a westbound right turn at the intersection of Brookhurst Street at Adams Avenue.*

MM4.13-9 *For future projects that occur within the Specific Plan area, the project applicant(s) shall make a fair share contribution to allow a right turn overlap for a northbound right turn at the intersection of Brookhurst Street at Adams Avenue.*

MM4.13-10 *For future projects that occur within the Specific Plan area, the project applicant(s) shall make a fair share contribution for the addition of a fourth northbound through lane to the intersection of Beach Boulevard at Edinger Avenue. Implementation of this improvement would require Caltrans approval.*

MM4.13-11 *For future projects that occur within the Specific Plan area, the project applicant(s) shall make a fair share contribution for the addition of a third westbound through lane to the intersection of Beach Boulevard at Edinger Avenue. Implementation of this improvement would require Caltrans approval.*

MM4.13-12 *For future projects that occur within the Specific Plan area, the project applicant(s) shall make a fair share contribution for the addition of a separate southbound right turn lane to the intersection of Beach Boulevard at Bolsa Avenue. Implementation of this improvement would require Caltrans and City of Westminster approvals.*

MM4.13-13 *For future projects that occur within the Specific Plan area, the project applicant(s) shall make a fair share contribution for the addition of a second westbound left turn lane to the intersection of Beach Boulevard at Talbert Avenue. Implementation of this improvement would require Caltrans approval.*

MM4.13-14 *For future projects that occur within the Specific Plan area, the project applicant(s) shall make a fair share contribution for the addition of a de facto westbound right turn lane to the intersection of Beach Boulevard at Talbert Avenue. Implementation of this improvement would require Caltrans approval.*

It is important to note that improvements identified for the Caltrans intersections would require Caltrans approval for implementation of the suggested mitigation measures. The resulting ICU values in 2016 with the proposed improvements (MM4.13-1 to MM4.13-14) are summarized in Table 4.13-17 (2016

ICU and Delay Summary with Proposed Improvements), along with the HCM delay results for the Caltrans intersections.

Table 4.13-17 2016 ICU and Delay Summary with Proposed Improvements

			Without Improvements		With Improvements	
Intersections	*Type**	*Peak Hour*	*ICU*	*LOS*	*ICU*	*LOS*
Beach Boulevard at Edinger Ave	M	PM	.94	E	.82	D
Beach Boulevard at Heil Avenue	D	PM	.97	E	.86	D
Beach Boulevard at Warner Avenue	M	PM	.93	E	.88	D
Beach Boulevard at Talbert Avenue	M	PM	.98	E	.87	D
Beach Boulevard at Garfield Avenue	M	PM	.94	E	.84	D
Brookhurst St at Adams Avenue	M	AM	1.02	F	.88	D
Beach Boulevard at Bolsa Avenue	M	PM	.96	E	.96	E
Caltrans Intersections	*Type**	*Peak Hour*	*Delay*	*LOS*	*Delay*	*LOS*
Beach Boulevard at Edinger Ave	M	PM	64	E	33	C
Beach Boulevard at Heil Avenue	D	PM	29	C	26	C
Beach Boulevard at Warner Avenue	M	PM	64	E	46	D
Beach Boulevard at Talbert Avenue	M	PM	70	E	51	D
Beach Boulevard at Garfield Avenue	M	PM	62	E	49	D
Beach Boulevard at Bolsa Avenue	M	PM	77	E	67	E

SOURCE: Austin-Foust Associates Inc. City of Huntington Beach Boulevard and Edinger Avenue Corridor Specific Plan Traffic Study. August 2009. Table 4-11

* M = mitigation measure; * D = discretionary improvement at a Caltrans intersection to meet City performance criteria

For the short-range (Year 2016), implementation of the mitigation measures and discretionary improvement identified above would allow six of the seven (and five of the six Caltrans intersections) impacted intersections to operate at LOS D or better under both the City and Caltrans methodology. For the intersection of Beach Boulevard at Bolsa Avenue, the mitigation measure does not achieve an acceptable LOS, however the delay results show that the mitigation reduces the overall delay and mitigates the project impact. Therefore, project impacts in 2016 would be reduced to less-than-significant levels at the impacted intersections. For Caltrans intersections, the improvements would allow five of the six affected intersections to operate at acceptable levels and mitigates the project impact for all intersections. However, because these are Caltrans intersections, changes to them would require their coordination and approval, which is not guaranteed. Consequently, this is considered a ***significant and unavoidable*** impact.

Freeway Ramp Analysis

In addition to the projected increase in traffic at various intersections in 2016, implementation of the proposed project would also add traffic to the I-405 freeway ramps. As shown in Table 4.13-14, in the Year 2016, the I-405 northbound loop ramp from Beach Boulevard is deficient in both the AM and PM

peak hours. The project has a significant contribution to this deficiency as any increase is considered a ***significant and unavoidable*** impact.

Summary of 2016 Traffic Impacts

Implementation of MM4.13-1 through MM4.13-14 as well as the discretionary action proposed for Beach Boulevard at Heil Avenue would allow all but one intersection to operate at acceptable levels of service and would mitigate the project impact for all intersections. However, the proposed project would result in a significant impact at five Caltrans intersections because the City cannot guarantee implementation of the mitigation measures. In addition, the project would increase traffic to the I-405 northbound loop ramp, which is currently deficient. Substantial reconstruction of the I-405/Beach Boulevard interchange and other components of the I-405 would be required to improve this condition and there is no feasible mitigation measure that could be implemented in conjunction with the project. Hence, traffic impacts in 2016 are considered ***significant and unavoidable***.

Impact 4.13-2 **Under Year 2030 conditions, operation of the proposed project would cause an increase in traffic, which is substantial in relation to the forecasted traffic load and capacity of the street system. Even with implementation of mitigation measures, this impact is considered *significant and unavoidable*.**

Similar to the 2016 analysis, the 2030 analysis presented below includes an evaluation of the increase in traffic as it relates to intersection operation as well as a freeway analysis. In addition, the potential impact to McFadden Avenue at Sugar Drive is also included in this analysis in response to public concern expressed for this particular intersection.

Intersection Analysis

Year 2030 volumes used for this analysis were derived using the Huntington Beach Traffic Model (HBTM). Year 2030 conditions of the proposed project include buildout of the City's General Plan and regional growth projections from OCTA. As discussed earlier, when compared to the General Plan, the Specific Plan generally results in lower volumes throughout the study area in 2030 due to the lower trip generation for the Specific Plan and some redistribution of the trips to and from the two corridors. As shown in Table 4.13-11 (2030 Project ICU Contribution to Cumulative Deficiencies), the Specific Plan identified seven intersections as having a project impact using the ICU performance criteria. Four of these were also identified as showing a project impact using the HCM criteria. Two additional project impacted locations were identified using the HCM criteria. Table 4.13-18 (2030 Summary of Project Impacts) summarizes the list of project impacts for year 2030.

Also shown in Table 4.13-18 is the type of deficiency (i.e., caused by the project or a cumulative deficiency). The nine intersections identified above were determined to show a project impact using the ICU and/or HCM criteria.

Table 4.13-18 2030 Summary of Project Impacts

Location	*Peak Hour*	*ICU Impact*	*HCM Impact*	*Project/Cumulative**
Beach Boulevard at Edinger Avenue	AM/PM	Yes	Yes	Project/Cumulative**
Beach Boulevard at Heil Avenue	PM	Yes	No	Cumulative
Beach Boulevard at Warner Avenue	PM	Yes	Yes	Cumulative
Newland Street at Warner Avenue	PM	Yes	N/A	Cumulative
Beach Boulevard at Talbert Avenue	PM	No	Yes	Cumulative
Beach Boulevard at Garfield Avenue	PM	Yes	Yes	Cumulative
Brookhurst Street at Adams Avenue	AM	Yes	N/A	Cumulative
Beach Boulevard at Bolsa Avenue	PM	Yes	Yes	Cumulative
Beach Boulevard at McFadden Avenue	PM	No	Yes	Cumulative

SOURCE: Austin-Foust Associates Inc., *City of Huntington Beach Boulevard and Edinger Avenue Corridor Specific Plan Traffic Study*, August 2009, Table 4-9.

N/A = not applicable

* Project versus Cumulative impact (i.e., project causes the impact versus project has a significant contribution to a cumulative impact).

** Project impact in the AM and cumulative impact in the PM.

For the Caltrans intersection of Beach Boulevard at Heil Avenue (which was determined to be deficient under the ICU criteria only), a discretionary improvement (as opposed to a mitigation measure) has been identified on the part of the city to meet city performance criteria on Caltrans facilities. This discretionary improvement includes adding a second northbound left turn lane at this intersection. Potential improvements to reduce project impacts in 2030 are included in MM4.13-1 through MM4.13-14, as previously identified in the 2016 analysis under Impact 4.13-1, as well as the following additional mitigation measures:

MM4.13-15 *For future projects that occur within the Specific Plan area, the project applicant(s) shall make a fair share contribution for the conversion of a separate westbound right turn lane to a de facto right turn lane at the intersection of Newland Street at Warner Avenue.*

MM4.13-16 *For future projects that occur within the Specific Plan area, the project applicant(s) shall make a fair share contribution for the addition of a third westbound through lane to the intersection of Newland Street at Warner Avenue.*

MM4.13-17 *For future projects that occur within the Specific Plan area, the project applicant(s) shall make a fair share contribution for the addition of a separate southbound right turn lane to the intersection of Beach Boulevard at McFadden Avenue. Implementation of this improvement would require Caltrans and City of Westminster approvals.*

MM4.13-18 *For future projects that occur within the Specific Plan area, the project applicant(s) shall make a fair share contribution for the addition of a separate northbound right turn lane to the intersection of Beach Boulevard at McFadden Avenue. Implementation of this improvement would require Caltrans and City of Westminster approvals.*

It is important to note that improvements identified for Caltrans intersections would require Caltrans approval for implementation of the suggested mitigation measures. The resulting ICU values in 2030

with the proposed improvements (MM4.13-1 to MM4.13-18) are summarized in Table 4.13-19 (2030 ICU and Delay Summary with Proposed Improvements), along with the HCM delay results for the Caltrans intersections.

Table 4.13-19 2030 ICU and Delay Summary with Proposed Improvements

			Without Improvements		With Improvements	
Intersections	*Type**	*Peak Hour*	*ICU*	*LOS*	*ICU*	*LOS*
Beach Boulevard at Edinger Avenue	M	AM	**.91**	**E**	.80	C
Beach Boulevard at Heil Avenue	D	PM	**.96**	**E**	.90	D
Beach Boulevard at Warner Avenue	M	PM	**.95**	**E**	.90	D
Newland Street at Warner Avenue	M	PM	**.91**	**E**	.84	D
Beach Boulevard at Talbert Avenue	M	PM	**1.00**	**E**	.88	D
Beach Boulevard at Garfield Avenue	M	PM	**.99**	**E**	.88	D
Brookhurst Street at Adams Avenue	M	AM	**1.10**	**F**	**.94**	**E**
Beach Boulevard at Bolsa Avenue	M	PM	**1.09**	**F**	**1.07**	**F**
Beach Boulevard at McFadden Avenue	M	PM	**.92**	**E**	.87	D
Caltrans Intersections	*Type**	*Peak Hour*	*Delay*	*LOS*	*Delay*	*LOS*
Beach Boulevard at Edinger Avenue	M	AM	42	D	36	D
Beach Boulevard at Heil Avenue	D	PM	43	D	37	D
Beach Boulevard at Warner Avenue	M	PM	**63**	**E**	45	D
Beach Boulevard at Talbert Avenue	M	PM	**78**	**E**	52	D
Beach Boulevard at Garfield Avenue	M	PM	**76**	**E**	55	D
Beach Boulevard at Bolsa Avenue	M	PM	**106**	**F**	**94**	**F**
Beach Boulevard at McFadden Avenue	M	PM	**63**	**E**	52	D

SOURCE: Austin-Foust Associates Inc. City of Huntington Beach Boulevard and Edinger Avenue Corridor Specific Plan Traffic Study. August 2009. Table 4-11

* M = mitigation measure; D = discretionary improvement at a Caltrans intersection to meet City performance criteria

For the long-range (Year 2030), implementation of the mitigation measures and discretionary improvement identified above would allow seven of the nine (and six of the seven Caltrans) impacted intersections to have acceptable ICU values (LOS C or LOS D). The improvements for the remaining two locations, Brookhurst Street at Adams Avenue and Beach Boulevard at Bolsa Avenue, would mitigate the project impact at these locations but not achieve an acceptable LOS under the ICU methodology. Even with implementation of mitigation measures MM4.13-3 through MM4.13-9 and MM4.13-12, the Brookhurst Street at Adams Avenue intersection would remain at LOS E in the AM peak hour and the Beach Boulevard at Bolsa Avenue intersection would remain at LOS F in the PM peak hour. Under the HCM methodology for the Beach Boulevard and Bolsa Avenue intersection, the delay results show that the mitigation reduces the overall delay and mitigates the project impact.

However, the City could not implement MM4.13-1, MM4.13-2, MM4.13-10 through MM4.13-14, MM4.13-17, and MM4.13-18 at its sole discretion. Because these are Caltrans intersections, changes to them would require their coordination and approval (as well as coordination with the City of

Westminster for MM4.13-12, MM4.13-17, and MM4.13-18), which is not guaranteed. Therefore, this is considered a ***significant and unavoidable*** impact.

Freeway Analysis

Freeway Ramps

As shown in Table 4.13-14, in the Year 2030, the I-405 northbound loop ramp from Beach Boulevard is deficient in both the AM and PM peak hours. The project has a significant contribution to this deficiency (more than .01). The V/C would be of similar magnitude under the current General Plan. However, since traffic would be added to an existing deficiency (LOS E), overall impacts in 2030 are considered ***significant and unavoidable***.

Regional Freeway System

Peak hour project traffic on the adjacent I-405 freeway for 2030 is listed in Table 4.13-15 (2030 I-405 Mainline Freeway Analysis). As shown in Table 4.13-15, the project contributes trips on some segments and reduces trips on others, the changes reflecting the trip characteristics of the project (i.e., changes in peak hour directionality where residential uses replace commercial uses). Information provided in the recent Project Study Report (PSR) for the I-405 freeway shows existing and future deficiencies on this facility. For the freeway information presented here, there are no significance criteria other than any increase in traffic on a deficient facility represents a project impact. Hence, it can only be noted that the project contributes traffic to a number of 2030 deficiencies on the state highway system. In the absence of specific significance criteria from Caltrans, the addition of traffic to a projected deficiency is considered ***significant and unavoidable***.

McFadden Avenue at Sugar Drive

Subsequent to the efforts involved in preparing the Traffic Report for the proposed project, the City opted to undertake a separate evaluation of potential traffic impacts at the intersection of McFadden Avenue at Sugar Drive, due to public concerns. The evaluation is not included within the Traffic Study for the project but is included separately as Appendix F2 (McFadden Avenue/Sugar Drive Traffic Evaluation) of this EIR. This discussion summarizes the information presented therein.

The intersection serves only Huntington Beach residents but is located completely within the City of Westminster. Based on existing conditions, and although the City does not have LOS criteria for unsignalized intersections, each movement is operating at an acceptable LOS (LOS D or better). Based on examination of accident data from the last five years, no safety issues exist at the intersection. The intersection's accident rate per million entering vehicles is 0.12. The average rate for similar intersections in the state of California is 0.20.

In the 2030 timeframe, the Traffic Study projects a 14 percent increase in eastbound traffic and eight percent decrease in westbound traffic in the AM peak hour at buildout. In the PM peak hour, the Traffic Study projects a seven percent increase in eastbound traffic and a 13 percent increase in westbound

traffic at buildout. The projected traffic increase would not be expected to result in increased traffic volumes on Sugar Drive or for the turn movements into the tract.

With implementation of the proposed Specific Plan, the critical intersection movements would still operate at an acceptable LOS and traffic volumes would not qualify warrants for traffic signal installation. Compared to the existing General Plan, the proposed Specific Plan would result in slightly fewer delays during the peak hour periods with the exception of the PM eastbound left turn, where the delay is unchanged. The analysis indicates that proposed Specific Plan slightly improves vehicle delays compared to the General Plan.

The review of conditions at the intersection identified one minor operational improvement that could be pursued to aid residents exiting the tract. This improvement is not needed as a result of the proposed project and is not considered a mitigation measure. City staff will work with the City of Westminster to explore the feasibility of extending the east leg's two-way left turn lane to Sugar Drive to provide an acceleration/refuge area for motorists.

Since implementation of the proposed Specific Plan would not result in a substantial increase in delays to motorists entering and exiting the tract or significantly alter traffic safety at the intersection, this impact is considered ***less than significant***. No mitigation is required.

Summary of 2030 Traffic Impacts

Implementation of MM4.13-1 through MM4.13-18 as well as the discretionary action proposed for Beach Boulevard at Heil Avenue would allow all but two intersections to operate at acceptable levels of service and would mitigate the project impact for all intersections. However, buildout of the proposed project would result in a significant impact at six Caltrans intersections because implementation of the mitigation measures cannot be guaranteed by the City. In addition, future projects under the Specific Plan would contribute traffic to the I-405 northbound loop ramp from Beach Boulevard, as well as the regional freeway system, which are both projected to have deficiencies in 2030. Substantial reconstruction of the I-405/Beach Boulevard interchange and a substantial section of the mainline capacity of the I-405 would be required to improve these conditions. There is no feasible mitigation measure that could be implemented in conjunction with the project to reduce these impacts. Therefore, 2030 traffic impacts are considered ***significant and unavoidable***.

Impact 4.13-3 **Construction of the proposed project would not cause an increase in traffic, which is substantial in relation to the existing traffic load and capacity of the street system. This impact is considered *less than significant*.**

Construction traffic generally occurs prior to the peak period, consistent with the typical construction workday of 7:00 A.M. to 3:00 P.M. Further, several arterial roadways in the project vicinity are designated truck routes in the City General Plan Circulation Element (Figure CE-7). Specifically, Edinger Avenue, Goldenwest Street, and Bolsa Avenue are designated truck routes and are easily accessible from the project area. Access to the I-405 freeway is available from Center Avenue to the east. Easy access to State freeways would eliminate truck traffic in the surrounding arterial streets. Truck trips could travel along designated truck routes north/east to I-405 or south to Pacific Coast Highway. Due to the minor

number of truck trips expected with construction of future projects, the likelihood that construction of projects will occur over a 10 to 20 year timeframe and not all concurrently, and due to the temporary nature of construction activities, truck trips due to import/export activities in the project area would not be anticipated to cause a substantial increase in traffic volumes and delays in the project area. Furthermore, since such a small portion of the entire Specific Plan area is located in a floodplain, the majority of future projects will likely not require the elevation of structures, which would result in fewer import/export truck trips. As such, construction-related traffic impacts would be ***less than significant***. No mitigation measures are required.

Threshold	Would the proposed project exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?

Impact 4.13-4 **Implementation of the proposed project would not exceed standards established by the Orange County Transportation Authority. This impact is considered *less than significant*.**

The Orange County Transportation Authority is designated as the Congestion Management Agency (CMA) to oversee the Orange County Congestion Management Plan (CMP). The CMP Highway System (HS) includes specific roadways, which include State highways and Smart Streets (formerly Super Streets), and CMP arterial monitoring locations/intersections. Five CMP intersections are located in the study area: (1) Beach Boulevard at Adams Avenue; (2) Beach Boulevard at Edinger Avenue; (3) Beach Boulevard at Pacific Coast Highway; (4) Beach Boulevard at Warner Avenue; and (5) Beach Boulevard at Bolsa Avenue. CMP-designated intersections have a performance standard of LOS E or better (intersection capacity utilization (ICU) not to exceed 1.00), and a project is considered to have a significant impact if it contributes three percent or more to an ICU when the performance standard is exceeded. The CMP analysis was carried out for a short-range time frame (five to seven years) as per CMP guidelines. Accordingly, the 2016 information was used for this analysis and the results are presented in Table 4.13-20 (CMP Intersection Analysis) as follows:

Table 4.13-20 CMP Intersection Analysis

	No Project		*With Project*	
Intersection	*AM*	*PM*	*AM*	*PM*
Beach Boulevard at Adams Avenue	.65	.82	.65	.82
Beach Boulevard at Edinger Avenue	.83	.94	.86	.94
Beach Boulevard at Pacific Coast Highway	.64	.75	.65	.75
Beach Boulevard at Warner Avenue	.72	.92	.74	.93
Beach Boulevard at Bolsa Avenue	.88	.97	.86	.96

SOURCE: Austin-Foust Associates Inc., *City of Huntington Beach Boulevard and Edinger Avenue Corridor Specific Plan Traffic Study*, August 2009, Table 5-2

As shown, none of the intersections show ICU values that exceed the allowable CMP threshold of 1.00. Therefore, a ***less-than-significant*** impact to CMP intersections would occur.

Threshold	Would the proposed project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses?

Impact 4.13-5 **Implementation of the project would not substantially increase roadway hazards. With implementation of code requirements, this impact is considered *less than significant*.**

For the purposes of this analysis, hazards are defined as changes to circulation patterns that could result in unsafe driving or pedestrian conditions. Examples include inadequate vision or stopping distance, sharp roadway curves where there is an inability to see oncoming traffic, or vehicular/pedestrian traffic conflicts. Future projects under the proposed Specific Plan would not substantially increase hazards due to design features or incompatible uses. Future projects under the proposed Specific Plan would also not introduce design features incompatible with current circulation patterns.

The Specific Plan contains examples of street sections within the project site. They are intended to provide an aesthetic streetscape environment consistent with the overall objectives of the Specific Plan. Two features that would have some potential effect on traffic operations are the recommendations for additional local streets and the creation of a boulevard section on Edinger Avenue. While neither is expected to increase roadway hazards, additional information is provided below.

New Streets

The addition of new local streets to act as buffers between commercial and residential areas as well as to foster pedestrian circulation and improve connectivity, offers several advantages with respect to circulation. Foremost is the ability to create a secondary circulation system, potentially reducing some traffic on the main arterials. In concept, it is similar to creating openings between adjacent parking lots along commercial frontage. Such openings allow vehicles to make more than one stop without having to access the adjacent arterial street, and also provide opportunities for driveway consolidation.

Edinger Avenue Boulevard Treatment

The creation of a boulevard along Edinger Avenue would provide a unique streetscape with both vehicular and pedestrian amenities. The parking along the frontage road would provide a buffer for pedestrians, and actual volumes on the frontage road would be low so that ingress and egress would seldom be an issue. It is recommended that the frontage road for this boulevard treatment start after and terminate before the signalized intersections. This would avoid creating complex intersections with multiple conflict points and ensure that the frontage roads do not negatively impact traffic operations at those intersections.

Edinger Avenue Crossing & UPRR Right-of-Way

The Edinger Avenue crossing and Union Pacific Railroad right-of-way may be subject to increased traffic volumes through the implementation of future projects under the Specific Plan. Future projects under the Specific Plan would be subject to individual environmental review and plan checks that would ensure that the design of future development does not increase hazards or create incompatible land uses in the

project area. If future development proposes to introduce residential uses in the Edinger Avenue crossing or Union Pacific Railroad right-of-way areas, site design features would be incorporated into these future projects in an effort to reduce the potential for conflicts between future residents and/or visitors and vehicles.

New Intersections

The potential for roadway hazards can occur as an inherent result of the placement of additional access points along public roadways. New intersections require adequate sight distance and intersection traffic control in order to minimize potential hazards. In order to ensure safe construction of project intersections in the future, the following code requirements would be required:

CR4.13-1 *On-site and off-site traffic signing and striping shall be implemented in conjunction with detailed construction plans for the project area. Restriping and signage on certain roadways could be required to control movements and provide safe access from any proposed driveways.*

CR4.13-2 *Sight distance at individual project access points shall be reviewed to ensure compliance with appropriate sight distance standards at the time of preparation of final grading, landscape and street improvement plans.*

Therefore, implementation of city requirements would ensure impacts are ***less than significant***.

Threshold	Would implementation of the proposed project result in inadequate emergency access?

Impact 4.13-6 **The project would not result in inadequate emergency access. This impact is considered *less than significant*.**

As part of standard development procedures, plans for future development under the Specific Plan would be submitted to the city for review and approval to ensure that all new development has adequate emergency access, including turning radius, in compliance with existing regulations. Therefore, a ***less-than-significant*** impact would occur after compliance with existing regulations, and future project traffic would not impede emergency access to and from adjacent and surrounding roadways.

Threshold	Would the proposed project result in inadequate parking capacity?

Impact 4.13-7 **Implementation of the proposed project would not result in inadequate parking capacity. This impact is considered *less than significant*.**

The parking requirements outlined in the Specific Plan recognize the unique characteristics intended for this area. They are customized with respect to the different districts, with lower parking ratios where size and diversity provide greater opportunities for shared parking. Parking management has two potential applications under such circumstances. The first is on-site management carried out by the owners/tenants in individual centers. Typically it is a function that the owner/tenant management organization undertakes. Primary examples are regulation of employee parking, valet parking (for restaurants for example), and combinations of the above for seasonal variations (e.g., December in a high

retail use area). A more extensive management strategy would be where parking consolidation is desired either on-site or adjacent to a project site. Consolidated parking amenities could be provided by a management organization or by the city in a manner similar to what has been implemented in the downtown area. This type of parking management strategy could allow small entities within a large center to pay an in lieu fee rather than having to individually provide the required parking.

As discussed in more detail under Impact 4.13-8, a primary objective of the proposed project is to promote alternative methods of transportation, specifically to promote an active pedestrian environment and the use of public transit. In consideration of the project area's close proximity to the OCTA transit center, as well as anticipated mixed-use development in the area (i.e., The Amstar/Red Oak (formerly The Ripcurl) project and The Village at Bella Terra projects), the potential exists that visitors and residents of the Beach Boulevard and Edinger Avenue Corridors would not require parking spaces as they would either be utilizing other methods of transportation or walking. This impact is considered ***less than significant***, and no mitigation is required.

Threshold	Would the proposed project conflict with adopted policies supporting alternative transportation (e.g., bus turnouts, bicycle racks)?

Impact 4.13-8 **Implementation of the proposed project would not conflict with adopted policies supporting alternative transportation. This impact is considered *less than significant*.**

As discussed above, project implementation is anticipated to be consistent with local policies related to transportation, including the City of Huntington Beach General Plan Land Use and Transportation Elements. Alternative modes of transportation are accessible for both patrons of commercial uses within the project area, as well residents of future development. The OCTA transit center is located at the northern end of the project area and provides a convenient location for residential trips to be made by transit. The walkability of the surrounding area, as well as the easy access to transit facilities would promote the city's goal of reducing vehicle miles traveled by residents and visitors of the Specific Plan area.

In addition, the Golden West Transportation Center is the City's largest transit hub and serves six bus lines and provides transit access throughout northern Orange County. The location of the project area in such close proximity to the transportation center hub would provide residents with a convenient means of alternative transportation. In addition, although not included as part of this analysis, the project area could also benefit from future commuter rail service if it is established along the existing Union Pacific Railroad line. Due to project compatibility with adopted policies supporting alternative transportation, this impact would be ***less than significant***. No mitigation measures are required.

4.13.4 Cumulative Impacts

The current General Plan and proposed Specific Plan cumulative analyses considers cumulative projects identified to occur within the vicinity of the project area, in addition to General Plan build out conditions identified to the Year 2030. The project-specific traffic analysis considers trips generated by cumulative

projects in its development of future baseline conditions. Therefore, the cumulative impact analysis is incorporated into the analysis presented in Section 4.13.3. As identified above, it is found that the project has a significant impact at nine intersections.

As discussed under Impact 4.13-2 above, future development for the Year 2030, in conjunction with cumulative traffic generated, would result in a potentially significant impact at the intersections identified in Table 4.13-18. However, mitigation measures MM4.13-1 to MM4.13-18 would require future applicants to provide a fair share payment for improvements to those intersections (as applicable). Although the significant impact at these intersections would be reduced to a less than significant level as a result of fair share payment for improvements, implementation of the proposed project would also contribute to projected regional freeway deficiencies in both 2016 and 2030. The increase in projected regional freeway deficiencies is considered substantial in relation to the forecasted traffic load and capacity of the street system. Therefore, the proposed project, in conjunction with cumulative projects in the area would result in a significant and unavoidable cumulative impact to area traffic. Consequently, because the proposed project would contribute traffic to the projected freeway deficiencies, the project's contribution is considerable. This is considered a ***significant and unavoidable*** cumulative impact.

In terms of parking impacts, it is assumed that future development under the Specific Plan would not result in a cumulatively significant impact with respect to parking deficiencies. As discussed under Impact 4.13-8 above, alternative modes of transportation are accessible for both patrons of commercial uses within the project area, as well residents of future development. The OCTA transit center is located at the northern end of the project area and provides a convenient location for residential trips to be made by transit. The walkability of the surrounding area, as well as the easy access to transit facilities would reduce the number of overall parking spaces required by future residents and visitors of the Specific Plan area. Furthermore, the Golden West Transportation Center is the City's largest transit hub and serves six bus lines and provides transit access throughout northern Orange County. The location of the project area in such close proximity to the transportation center hub would provide residents with a convenient means of alternative transportation, thereby further reducing the overall need for parking spaces. Implementation of the parking strategy outlined in the Specific Plan would ensure that project-related parking impacts would be less than significant. Therefore, because parking tends to be a site-specific function of various development sites and because the proposed project would not have a considerable contribution to a cumulative impact, future development under the Specific Plan would result in a ***less-than-significant*** cumulative parking impact.

4.13.5 References

Austin-Foust Associates, Inc. 2009. *Beach Boulevard and Edinger Avenue Corridor Specific Plan Traffic Study*, August.

California Department of Transportation (Caltrans). 2002. *Statewide Transit-Oriented Development Study*, September.

Huntington Beach, City of. 1996. Circulation Element. *Huntington Beach General Plan*, May 13.

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